SERVICE MANUAL

Digital Still Camera

EPSON PhotoPC 2100Z

COLOR IMAGING EPSON

EPSON®

SEDC01002

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Imaging & Information Product Division
TPCS Quality Assurance Department

PRECAUTIONS

Precautionary notations throughout the text are categorized relative to 1)Personal injury and 2) damage to equipment.

DANGER Signals a precaution which, if ignored, could result in serious or fatal personal injury. Great caution should be exercised in performing procedures preceded by DANGER Headings.

WARNING Signals a precaution which, if ignored, could result in damage to equipment.

The precautionary measures itemized below should always be observed when performing repair/maintenance procedures.

DANGER

1. ALWAYS DISCONNECT THE PRODUCT FROM THE POWER SOURCE AND PERIPHERAL DEVICES PERFORMING ANY MAINTENANCE OR REPAIR PROCEDURES.
2. NO WORK SHOULD BE PERFORMED ON THE UNIT BY PERSONS UNFAMILIAR WITH BASIC SAFETY MEASURES AS DICTATED FOR ALL ELECTRONICS TECHNICIANS IN THEIR LINE OF WORK.
3. WHEN PERFORMING TESTING AS DICTATED WITHIN THIS MANUAL, DO NOT CONNECT THE UNIT TO A POWER SOURCE UNTIL INSTRUCTED TO DO SO. WHEN THE POWER SUPPLY CABLE MUST BE CONNECTED, USE EXTREME CAUTION IN WORKING ON POWER SUPPLY AND OTHER ELECTRONIC COMPONENTS.
4. WHEN DISASSEMBLING OR ASSEMBLING A PRODUCT, MAKE SURE TO WEAR GLOVES TO AVOID INJURIER FROM METAL PARTS WITH SHARP EDGES.

WARNING

1. REPAIRS ON EPSON PRODUCT SHOULD BE PERFORMED ONLY BY AN EPSON CERTIFIED REPAIR TECHNICIAN.
2. MAKE CERTAIN THAT THE SOURCE VOLTAGES IS THE SAME AS THE RATED VOLTAGE, LISTED ON THE SERIAL NUMBER/RATING PLATE. IF THE EPSON PRODUCT HAS A PRIMARY AC RATING DIFFERENT FROM AVAILABLE POWER SOURCE, DO NOT CONNECT IT TO THE POWER SOURCE.
3. ALWAYS VERIFY THAT THE EPSON PRODUCT HAS BEEN DISCONNECTED FROM THE POWER SOURCE BEFORE REMOVING OR REPLACING PRINTED CIRCUIT BOARDS AND/OR INDIVIDUAL CHIPS.
4. IN ORDER TO PROTECT SENSITIVE MICROPROCESSORS AND CIRCUITRY, USE STATIC DISCHARGE EQUIPMENT, SUCH AS ANTI-STATIC WRIST STRAPS, WHEN ACCESSING INTERNAL COMPONENTS.
5. DO NOT REPLACE IMPERFECTLY FUNCTIONING COMPONENTS WITH COMPONENTS WHICH ARE NOT MANUFACTURED BY EPSON. IF SECOND SOURCE IC OR OTHER COMPONENTS WHICH HAVE NOT BEEN APPROVED ARE USED, THEY COULD CAUSE DAMAGE TO THE EPSON PRODUCT, OR COULD VOID THE WARRANTY OFFERED BY EPSON.

About This Manual

This manual describes basic functions, theory of electrical and mechanical operations, maintenance and repair procedures of the printer. The instructions and procedures included herein are intended for the experienced repair technicians, and attention should be given to the precautions on the preceding page.

Manual Configuration

This manual consists of six chapters and Appendix.

CHAPTER 1. PRODUCT DESCRIPTIONS
Provides a general overview and specifications of the product.

CHAPTER 2. OPERATING PRINCIPLES
Describes the theory of electrical and mechanical operations of the product.

CHAPTER 3. TROUBLESHOOTING
Describes the step-by-step procedures for the troubleshooting.

CHAPTER 4. DISASSEMBLY / ASSEMBLY
Describes the step-by-step procedures for disassembling and assembling the product.

CHAPTER 5. ADJUSTMENT
Provides Epson-approved methods for adjustment.

CHAPTER 6. MAINTENANCE
Provides preventive maintenance procedures and the lists of Epson-approved lubricants and adhesives required for servicing the product.

APPENDIX Provides the following additional information for reference:

- Connector pin assignments
- Electric circuit boards components layout
- Electrical circuit boards schematics
- Exploded diagram & Parts List

Symbols Used in this Manual

Various symbols are used throughout this manual either to provide additional information on a specific topic or to warn of possible danger present during a procedure or an action. Be aware of all symbols when they are used, and always read NOTE, CAUTION, or WARNING messages.

Indicates an operating or maintenance procedure, practice or condition that is necessary to keep the product's quality.

Indicates an operating or maintenance procedure, practice, or condition that, if not strictly observed, could result in damage to, or destruction of, equipment.

May indicate an operating or maintenance procedure, practice or condition that is necessary to accomplish a task efficiently. It may also provide additional information that is related to a specific subject, or comment on the results achieved through a previous action.

Indicates an operating or maintenance procedure, practice or condition that, if not strictly observed, could result in injury or loss of life.

Revision Status

Revision	Date of Issue	Description
A	October 15, 2001	First release
B	November 12,2001	"Optics" on page -6: Revise the specification. "Shooting Mode" on page -7 : Revise the specification. "Shooting Operation" on page -10 : Revise the specification. "Playback Mode Functions" on page -11 : Revise the specification. "Beep Sound Specifications" on page -12 : Revise the specification. "Miscellaneous (Abnormal Operation)" on page -15 : Revise the specification. "LED Indications" on page -16 : Revise the specification. "Lens Extending and Retracting Control" on page -19 : Revise the specification. Table 1-14 on page 20 : Revise the specification. Table 1-15 on page 21 : Revise the specification. "Processing Time" on page -23 : Revise the specification. "Accessories" on page -31 : Revise the specification. "Option" on page -32 : Revise the specification. "Tools" on page -48 : Revise the CAUTION and change Serial cable name and parts code. Table 5-1 on page 60 : Revise the table. "Adjustment Programs" on page -61: Revise the Caution. "Tools" on page -61 : Change Serial cable name and parts code. Table 5-3 on page 61: Revise the table. "LCD (Brightness) Adjustment" on page -65 : Add the Serial cable parts code. "USB ID Writing" on page -71 : Correct error. "Front Cover Removal" on page -51: Delete the lubrication in the Check point. "Battery Box Removal" on page -56 : Delete the lubrication in the Check point. "Maintenance" : Delete the lubrication.

C	November 30,2001	"LCD (Brightness) Adjustment" on page -65 : Add the CAUTION and revise the adjustment procedure. "USB ID Writing" on page -71 : Error correction.
D	February 20,2002	"Adjustment Programs" on page -61: Revise the CAUTION. "Installation" on page -64 : Revise the procedure. "BC (Battery Check) Compensation Value Writing" on page -64: Revise the CAUTION.
E	November 5,2002	Table 5-1 on page 60, Table 5-2 on page 61, Table 5-3 on page 61: White defect compensation is inclued in CCD Gain Adjsutment. "CCD Gain Adjustment, Shutter Compensation Black Defect Writing and White defect compensation" on page -67: White defect compensation is inclued in CCD Gain Adjsutment.

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CHAPTER

1

PRODUCT DESCRIPTION

1.1 Features

Major features of EPSON PhotoPC 2100Z are as follows:

- Advanced appearance
  - Teardrop shaped design, which is easy to hold and carry
  - Digital camera design of the 21st century (quite different from competitors')
- High quality image
  - CCD with 2,300,000 pixels
  - Image processing technology using the DSP (Digital Signal Processor) for exclusive use with digital cameras
  - High quality image created by Hypict loaded with a color noise removal function
  - Compatible with EPSON color space
  - Compatible with PIM (PRINT Image Matching)
- A variety of useful functions
  - Lens barrier coupled collapsible optical 2 times zoom lens, zoom interlocking optical viewfinder
  - Built-in flash (automatic, red-eye reduction, prohibition)
  - EPSON 1.6 type D-TFD color LCD monitor
  - 8MB CompactFlash Card is attached as standard
  - USB and AC adapter terminals
  - Print (DPOF: Digital Print Order Format) button
- Conforming to industry standards
  - DCF (Design rule for Camera File system) format
  - DPOF file creation function is supported.
- Software
  - EPSON Photo4!
  - EPSON PhotoQuicker
  - Photo Suite 3SE (Win)
  - Photo Suite 3 (Mac)
  - Photo Vista Full Version (Win/Mac)
- User interfaces
  - Shooting is possible immediately after opening the lens barrier.
  - Function display is more easy to understand, thanks to use of icon animation.
  - Access FDA format (Function Direct Assign) as GUI operations, which has a high evaluation of user-friendliness.
- External interfaces
  - USB (Mass Storage Class)
  - AC adapter input (DC7.0V, 2.0A)

1.2 Exterior View

1.2.1 Dimensions and Weight

- Dimensions

  130 mm × 73 mm × 46.7 mm (not including some protrusions)

- Weight

  265 g (without any of the batteries, strap and memory card)

- Tripod mount

  Compliant with JIS B7103 1/4

- Appearance

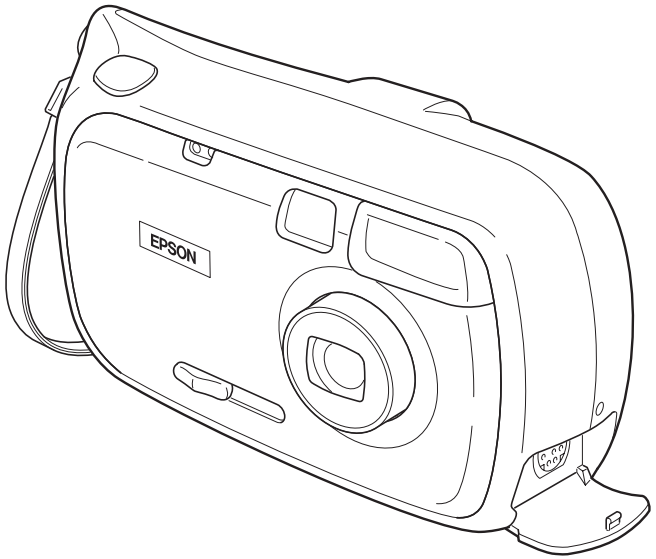


Figure 1-1. Exterior View

1.3 Functional Specifications

1.3.1 Image Data

- Recording format

  JPEG compression: DCF (Exif 2.1) format

- Thumbnail image

  160 × 120 pixels

- Image size

  Hypict: 2160 × 1440 pixels

  Print: 180 × 1200 pixels

  e-mail: 720 × 480 pixels

- Color
  - Full color (24-bit full color)
  - PIM (PRINT Image Matching)

    The PIM commands are stored in the Exif header's information area of Maker Note tag (0x927C). The commands are as follows:

    Bright setting (user setting) / AutoPhotoFine mode setting* (Maker setting)

    *: Modes available are normal mode, macro mode and night scene mode.

1.3.2 Optics

- CCD
  - 1/2.6 inch color area CCD, interlace reading, complementary color filter
  - Total pixels: 2,300,000 pixels (1901 x 1212)
  - Effective pixels: 2,180,000 pixels (1806 x 1206)
- Lens
  - Collapsible 2 times zoom lens
  - f = 5.6-11.2 mm (equivalent to 35-70 mm on a 35 mm film camera)
  - Brightness F3.3 (W)-F4.6 (T), 6 elements in 5 groups construction (2 spherical lens elements)
- Aperture

  F3.3 / 6.2 (Wide) - F4.6 / 8.6 (Telescopic)

- Viewfinder
  - Real image motor type (field of view ratio 85% at eye-point)
  - With AF target mark
- Focus
  - Auto focus
- Shooting range
  - 0.3 m to 0.5 m (macro mode: telescopic end fixed)
  - 0.5 m to infinity (normal)
- Shutter
  - Electromagnetic release mechanical shutter and electric iris
  - Normal (flash OFF): 1/2, 1/8 - 1/1000 second
  - Flash ON (Wide): 1/30 - 1/1000 second
  - Flash ON (Tele): 1/60 - 1/1000 second

1.3.3 Shooting Mode

1.3.3.1 Shooting Functions

☐ Display of information zone

The following information is displayed in the "information zone" during shooting mode.

- Date / zoom gauge / special setting / number of frames remaining / battery status

☐ Exposure control

Center-weighted light metering programmed AE (aperture and shutter speed are adjustable)

☐ LCD shooting display

- TTL image playback (playback rate 1/20 sec.)
- Shooting field of view is 98%.

☐ Viewfinder shooting

- Shooting field of view is 85%.
- For macro shooting, digital zoom can not be used.
- Shutter button, MENU button, Zoom button, Lens Cover switch and Playback button are valid as in LCD shooting mode.

☐ Built-in flash

- Automatic (TTL direct flash auto), off, red-eye reduction, forced flash (daylight synchronization)
- Flash range (wide): 0.5-3.2 m
- Flash range (Tele): 0.5-2.3 m
- Flash color temperature: 5700K
- GN (Guide Number): 9
- Restoration from power saving mode entered in flash off state occurs without charging the flash.

☐ ISO sensitivity

- Automatic sensitivity changeover (ISO 100 ~ 200)
- ISO sensitivity is automatically changed over by Auto ISO setting.
- Table 1-1 to Table 1-3 show the relationship between brightness and the ISO sensitivity to be automatically set.

Table 1-1. Flash Auto

	ISO110	ISO110 ~ 200	ISO140 (Flash Firing)
Wide	LV8.3 or above	-	LV8.3 or below
Tele	LV10.3 or above	LV10.3 ~ 9.4	LV9.4 or below

Table 1-2. Flash OFF

	ISO120	ISO120 ~ 200	ISO200
Wide	LV8.3 or above	LV8.3 ~ 7.4	LV8.4 or below
Tele	LV10.3 or above	LV10.3 ~ 9.4	LV9.4 or below

Table 1-3. Forced Flash

	ISO120	ISO140
Wide	LV8.3 or above	LV8.e or below
Tele	LV10.3 or above	LV10.3 or below

☐ Self-timer

- Can be used with LCD shooting and Viewfinder shooting. 10-second timer (fixed).
- With self-timer mode selected, self-timer operation starts when the shutter button is pressed.
- During self-timer operation:

  User is informed of self-timer operation by the front LED, beep sound and LCD monitor (self-timer animation: not used in viewfinder mode).

- Macro
  - AF range

    The AF range for macro shooting is 30 cm to 50 cm, with optical zoom fixed to the telescopic end.
  - When the zoom button is pressed:

    Macro + digital zoom is can be used. Macro + optical zoom can not be used.
  - In macro mode:

    Viewfinder shooting is disabled. (Viewfinder shooting can not be selected by menu button.)
- Backlight compensation

  Used in both LCD shooting and viewfinder shooting. The following operation will be performed:
  - Flash OFF:

    +1.5EV offset

    Shutter speed: It is possible for exposure can +1.5EV. When it is dark around even 1/8 second.
  - Flash ON:

    Daylight synchronization (by Forced flash)

    Daylight synchronization is replaced with slow synchronization when it becomes dark.
- Hypict

  Characterized by a higher boundary detection accuracy, a larger filter size and improved noise suppression capability.
  - Can be used only while Hypict is set.
  - Switching of image quality (Print/e-mail) is disabled while Hypict is set.
- Switching of resolution (Print/e-mail)

  The default setting is “Print”.

Table 1-4. Resolution Switching

Operation	Status		
	Print (Normal)	Hypict	e-mail
Switching to Hypict	To Hypict	-	To Hypict
Switching to e-mail	To e-mail	Switching impossible (Gray out)	-
Switching to Print	-	To Print or e-mail *	To Print

Note: *: Resolution changes to that for e-mail if the previous setting was e-mail. If it was not e-mail, resolution changes to that for Print.

- Sequential numbering of files

  The highest EPSON folder number and file number in the DCIM Folder in the CF card are stored in memory.
- Hyper night scene
  - Shutter speed: fixed to 1/2 second
  - Aperture: open
  - Can be used for LCD shooting and viewfinder shooting. The following processing will be performed:

Table 1-5. Hyper Night Scene

		Pixel compensate	Slow synchronization	Noise reduction
Hyper night scene	Flash Auto	-	Available	Available
	Flash OFF	-	Not available	Available
Hyper night scene + Hypict	Flash Auto	Available	Available	Available
	Flash OFF	Available	Not available	Available

- White balance

  The following two modes are supported:
  - TTL system automatic white balance
  - AUTO mode/Fixed mode (color temperature is 5100K) can be selected

☐ Digital zoom

Smooth digital zoom for a maximum of 2.5 magnification can be used.

- 9-stage switching

Processing is slow during digital zoom operation.

- Shift to VRF shooting mode during digital zoom on, digital zoom function is removed.

The image is stored with an image size determined by the selected recording mode.

- e-mail: 720 × 480
- Print: 1800 × 1200
- Hypict: 2160 × 1440

☐ Optical zoom

Wide end (35mm) - telescopic end (70mm), 6-step changeover. (Coupled with viewfinder)

☐ Shooting menu display/non-display

Switching between shooting menu display and non-display and selection of viewfinder shooting (LCD off) are possible.

☐ Simple DPOF

- DPOF number of prints can be set. (This information can be used when images are to be viewed after shooting.)
- If the DPOF file is write-protected or broken, the Simple DPOF function does not permit setting or recording.

☐ Simultaneous setting for Hyper night scene and backlight compensation

The following processing will be performed:

- Flash ON: Slow synchronization
- Flash OFF: In the same way as for Hyper night scene, shutter speed is fixed to 1/2 second and aperture is opened.

1.3.3.2 Shooting Operation

- Pressing the shutter button halfway (focus lock)
  - Evaluates AF/AE/AWB, and reflects the evaluated value in the preview display. If the CF is pulled out in this status, an alarm is indicated.
  - Even if the communication cable is inserted, transition to the communication mode does not take place during half-press of the shutter button.

    Transition to communication mode is achieved either after cancellation of half-press of the shutter button or after shooting.
- Shooting process operation

Table 1-6. Shooting Process Operation

User/Camera Operation		LCD	Contents of Camera Operation	Target Processing Time
1	Pressing the shutter button fully	OFF	☐ Shooting based on the AE, AWB, AF evaluation data. ☐ Capturing the CCD image data. ☐ Transferring the image data to SDRAM.	-
2	Image processing	OFF	☐ Processing the image data. ☐ Starting to charge the flash when it is to be used.	2 seconds
3	Image confirmation	ON (including viewfinder shooting)	☐ Displaying the image confirmation screen during image processing. After image processing, the camera transfers the image to the CF (back operation).	-

Table 1-6. Shooting Process Operation (continued)

User/Camera Operation		LCD	Contents of Camera Operation	Target Processing Time
4-1	Pressing the OK button	ON	☐ Starting to display motion picture (through image). ☐ Transition to each shooting mode.	-
4-2	Pressing the DPOF button	ON	Displaying the simple DPOF screen.	
4-3	Next shooting	ON	☐ Starting to display motion picture (through image). ☐ Transition to each shooting mode.	

- Processing after shooting

  After shooting, AE will be executed at the beginning of preview.

1.3.4 Playback Mode Functions

- Display in information zone

  Displays the following information in the “information zone” while in playback mode.

  - Displayed frame number / DPOF number of prints / PIM setting/ total DPOF number of prints / resolution / battery status / cursor

- Image playback

  95% framing display is performed, but only with an aspect ratio of 3:2 only.

- One-by-one image playback (forward/backward)

  Images are displayed one by one by switching. Images are scrolled by means of the W/T button.

- High-speed one-by-one image playback (forward/backward)

  When the W/T button is held pressed at a 9-division display, the camera performs high-speed one-by-one image playback.

- Split display

  The LCD shows nine images at a time.

- Magnification display
  - Magnifies the image twice on the display.
  - Smooth scrolling is possible.
  - The zoom display icon indicates the magnified area.

- Deletion

  Single image deletion and all images deletion (including deletion of DPOF setting and PIM setting) are possible.

- DPOF (number of prints)
  - Permits setting of the DPOF number of prints. A maximum of 9 prints for one image are allowed.
  - If the DPOF file is write-protected or broken, a new DPOF file will be created and the old DPOF file will be deleted.

- Brightness compensation (User PIM)
  - Brightness compensation: Can be turned on or off.
  - Turning on or off is permitted irrespective of the DPOF setting.

- Resetting the DPOF number of prints
  - The DPOF number of prints can be reset.
  - This function is disabled (display turns gray) when no DPOF number of prints has been set.

- Playback of images taken with other models

  The table below indicates the processing (operation) for images taken by other EPSON's cameras.

Table 1-7. Processing (Operation) for Images Taken by Other EPSON's Cameras

Function	PhotoPC 800 PhotoPC 850Z	PhotoPC 3000Z	PhotoPC 3100Z
Image file playback (DCF)	Available	Available	Available
DPOF	Not available	Not available	Available *1
User PIM	-	-	Not available *2
TIFF image playback	-	Thumbnail display	Thumbnail display
Motion picture playback	-	Not available	Not available

Note: *1: The DPOF number of prints for any camera other than PhotoPC 2100Z must be cleared before setting the DPOP number of prints (including simple DPOF setting) with PhotoPC 2100Z.

*2: User PIM is not available for images taken with any camera other than PhotoPC 2100Z. However, User PIM of the cameras other than PhotoPC 2100Z can be maintained.

- Writing DPOF and PIM data in the CF card
  - The camera writes the PIM data in the CF card immediately after setting and the DPOF data at mode switching.
  - If the batteries are removed during DPOF and PIM setting, the camera perform PIM writing in the CF card but dose not write PDOF.

1.3.5 Setup Mode Functions

☐ Display of information zone

Displays the following information in the “information zone” while in setup mode.

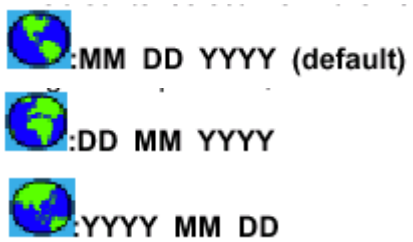
- Date / cursor / battery status

☐ Date and time setting

Setting of year, month and day, and hour and minute is available.

☐ Date display switching

- The date display method can be changed.
- The setting is kept in memory even if the backup battery has run down.
- The setting is stored in the 8MB flash ROM.
- The date display method can be selected among the following three patterns:



M: Month, D: Day, Y: Year

☐ Card format

- CF cards can be formatted.
- CF card formatting operation is not performed when no CF card has been inserted.

☐ Beep sound setting

Setting of beep sounds (operation sounds and shooting sounds) is available in the following three ways:

- Both shooting sounds and operation sounds are used.
- Only shooting sounds (including self-timer sounds) are used.
- Neither shooting sounds nor operation sounds are used.

1.3.5.1 Beep Sound Specifications

The following three types of sounds are used:

- A: 4.9KHz
- B: 1.2KHz
- C: 2.4KHz

Table 1-8. Beep Sound Specifications

Item	Sound Pattern Name	Mode	Status	Sound Patterns
1	SM	Shooting	Changes from off to shooting mode (excluding communication mode)	BCBCA
2	SM2	Playback	Changes from off to playback mode (excluding communication mode)	BCBCA
3	PF	Lens cover close	Changes from shooting mode to off: No sound is used when the lens cover is closed in playback mode.	CABC
4	PF2	Turning off with playback button	Changes from playback mode to off	CABC
5	MC	Playback-Shooting	Switching sound between playback and shooting mode	BBCA
6	BO	Shooting/ Playback	Tool box open	BCC
7	BC	Shooting/ Playback	Tool box closed	CBB
8	HC	Shooting/ Playback	Highlight moved in tool box	B
9	FI	Shooting/ Playback	Function setting (icon moves to left)	BC
10	FB	Shooting/ Playback	Function cancellation (icon moves to right)	
11	FF	Shooting	To lower hierarchy	CB
12	SC	Shooting	To higher hierarchy	CB
13	TP	Shooting	Shutter button	A

Table 1-8. Beep Sound Specifications (continued)

Item	Sound Pattern Name	Mode	Status	Sound Patterns
14	ST	Shooting	Self-timer button	AC (repeats until shutter starts operating)
16	IC	Playback	High-speed switching	B
17	MO	Shooting/ Playback	Menu on/off	B
18	SD	Battery life expired	Batteries have run down.	AAC
19	P4	Communication	Transition to communication	CBB
20	CF	Power on all	No CF card	AAC
21	CD	Power on all	Transition to power saving mode	CBB
22	DP	Playback	DPOF button is pressed	BC, off and C
23	DPR	Playback	The DPOF number of prints is reset	CB

Note: *1: The sound ST is not given forth in complete synchronization with the self-timer LED.

*2: The sound BS is in synchronization with changeover of image.

*3: During playback of a first sound, if a second sound occurs (interrupts), the second sound overrides the first sound.

1.3.6 Communication with PC

- Type of communication
  - Only USB communication (Mass Storage Class) is available.
  - Serial communication is not supported.
- Start of communication
  - When the communication cable (USB) is inserted in shooting, playback or setup mode, the camera enters the communication mode.
  - Even when the communication cable (USB) is inserted in shooting, playback or setup mode, the camera does not enter the communication mode if a CF card has not been inserted.
  - Communication is started by pressing the playback button when the cable has been inserted.
  - Communication is started when the lens cover is opened if the cable has been inserted.
- LED indication during communication
  - Orange at 1Hz when there is no communication data access
  - Green at 2Hz when there is communication data access
- End of communication

  When the playback button is pressed during communication, the communication mode is ended and the power turns off.
- Communication command

  The specifications related to the USB Mass Storage Class are based on the “USB Mass Storage Class UFI Command Specification Rev.1.0”.

1.3.7 Memory

- Built-in RAM

  8MB (64Mb (32 bits × 2M))

- Built-in ROM

  1MB (for program only)

- Image memory
  - CompactFlash Memory Card Type 1 is used.
  - A maximum of 256MB of CF card can be accessed.
  - PC-DOS format: 512B/Sector
  - 16bitFAT (16MB or more)

1.3.8 Built-in Clock

- Built-in clock
  - The camera incorporates a clock.
  - Default is January 1, 2001, 0:00. Does not count down earlier than this time.
  - Capable of counting up to December 31, 2035, 23:59. Does not count up later than this time.
  - Even while replacing the batteries, the internal lithium secondary battery maintains the date and time setting.

1.3.9 Detection of Battery Status

- Battery status

  Battery status can be detected in the following steps:
  Batteries full / Batteries half / Exchange batteries / Battery ran down.

1.3.10 Miscellaneous (Abnormal Operation)

- When batteries are removed during operation:

  When the batteries (or AC adapter) are removed during operation and re-inserted

  - Playback mode is set by pressing the playback button irrespective of the previous operation.
  - Shooting mode is set when the lens cover is opened irrespective of the previous operation.

- If CF memory card is pulled out while power is on

  The camera turns off automatically.

- If CF memory card is inserted while power is on

  The camera turns off automatically.

1.3.11 Indication

1.3.11.1 Overview

- LCD monitor
  - EPSON 1.6 type D-TFD color LCD monitor

    55,000 pixels: 237 x 234 pixels
  - Field of view ratio for shooting is 98%
  - At playback, each recorded image is displayed in 100% of recorded pixels. (Aspect ratio 3:2 only)
- Operation sound / shutter sound

  All sounds (Joy), Only shooting sound (including self timer sound) (Only shoot), or No sound (Silent) can be selected.
- Self timer indication (Front LED)
  - Front red LED indication

    Slow-speed flashing (8 seconds), High-speed flashing (the last 2 seconds)
  - LCD indication

    Self-timer animation is displayed during operation of the self-timer. (Beep, LED and animation may not be synchronous.)

    There is no LCD indication at viewfinder shooting (LCD is off).
- Viewfinder side LED
  - 3-mode display of green light on / flashing / out.
  - 3-mode display of red light on / flashing / out.
  - 3-mode display of orange light on / flashing / out.

1.3.11.2 LED Indications

Table 1-9. LED Indications

Camera Status	Detailed Status	LED			Remarks
		Green	Orange	Red	
Error status	Error status			On	CF R/W error
	CF full to its capacity (No CF inserted)			(2Hz)	In playback mode, this indication occurs only when no CF is inserted
	Battery life expiration (Shooting mode)			(1Hz)	
	Battery life expired (playback mode)			(1Hz)	
Waiting	Power is just turned on (Busy)	(2Hz)			
	Mode switching (Busy)	(2Hz)			
	Image processing (Busy)	(2Hz)			
	Focusing time	(2Hz)			
	Flash charging	(2Hz)			
	Data transfer to CF	(2Hz)			
	Reading from CF	(2Hz)			
	Communicated with PC	(2Hz)			
Communication	Connected to PC		(1Hz)		
Operation OK	Operation is OK (both shooting and playback)	On			
Self-timer shooting	Self-timer is used			(1Hz/ 2Hz) *1	
Power saving	Power saving mode 1		On		
	Power saving mode 2		Duty flashing *2		

Note: *1: Self-timer start to self-timer end: 10 seconds
Self-timer start to 8 seconds: 1Hz
8 seconds to self-timer end: 2Hz

*2: Duty flashing has off time longer than on time. 0.5Hz: on for 0.1 second and off for 1.9 second.

LED INDICATIONS FOR CF FULL TO ITS CAPACITY (NO CF INSERTED)

Table 1-10. LED Indications for CF Full to its Capacity (CF Not Inserted)

1	If batteries have run down when CF is full to its capacity (no CF is inserted)	☐ Shooting: Red 1Hz ☐ Playback: Red 1Hz
2	If mode is switched when CF is full to its capacity (no CF is inserted)	☐ From playback to shooting: Red 2Hz ☐ From shooting to playback: Red 2Hz (Only when CF is not inserted))
3	If communication is started when CF is full to its capacity (no CF is inserted)	☐ Shooting: Orange 1Hz (Red 2Hz when CF is not inserted) ☐ Playback: Orange 1Hz (Red 2Hz when CF is not inserted)
4	If the camera enters power saving mode 1 when CF full to its capacity (no CF is inserted)	☐ Shooting: Orange on ☐ Playback: Orange on
5	If the camera enters power saving mode 2 when CF is full to its capacity (no CF is inserted)	Shooting: Orange Duty flashing (Only viewfinder mode)

Note: *: In playback mode, Red LED flashes at 2Hz only when no CF is inserted.

LED INDICATIONS FOR BATTERY LIFE EXPIRATION

Table 1-11. LED Indications for Battery Life Expiration

1	If batteries have run down (red 2Hz) during mode switching (green 2Hz)	☐ From shooting to playback: Red 1Hz ☐ From playback to shooting: Red 1Hz
2	If batteries have run down (red 1Hz) during communication (orange 1Hz)	☐ Red 1Hz
3	If batteries have run down (red 1Hz) in power saving mode (orange 1Hz)	☐ Red 1Hz

LED INDICATION FOR ERROR STATUS

In an error status, the red LED is lit and beep sound A (4.9KHz) is emitted for three seconds and then power turns off automatically.

1.3.11.3 Shooting Status Display on Color LCD

The color LCD monitor displays color frames for different functions. This function is available only for LCD shooting.

Table 1-12. Shooting Status Display on Color LCD

LCD	Frame Color	Status
	No display	Normal
	Green frame	Macro
	Yellow frame	Digital zoom

Note: Priority order: digital zoom frame > macro frame.

1.3.12 Switches and Buttons

1.3.12.1 Switches and Buttons

The table below shows a list of switches and buttons.

Table 1-13. Switches and Buttons

Switch/Button	Functions	Qty
Lens Cover Switch	Manual slide type • When the lens cover is opened, the lens extends and the camera enters the LCD shooting mode. • When the lens cover switch is slid to the "Close" position, the lens retracts and power turns off.	1
Playback Button	Push type • Used to turn playback mode on/off. • Also used to turn power off in communication mode.	1
Shutter Button	Push type Two positions, namely, the half-pressed position and fully-pressed position, are detected.	1
W/T Button	Right-and-left two-position seesaw type • Lens zoom operation in shooting mode • GUI operation for playback	1
F Button	Push type. For GUI operation (exclusive use for Function Direct Assign)	1
SCROLL Button	Push type. For GUI operation (for menu selection)	1
OK Button	Push type. For GUI operation (for menu setting/ cancellation)	1
MENU Button	Push type. For switching LCD indications.	1
Print Button	Push type. For setting the DPOF number of prints.	1

1.3.12.2 Locations of Switches and Buttons

The figures below show the names and locations of switches and buttons.

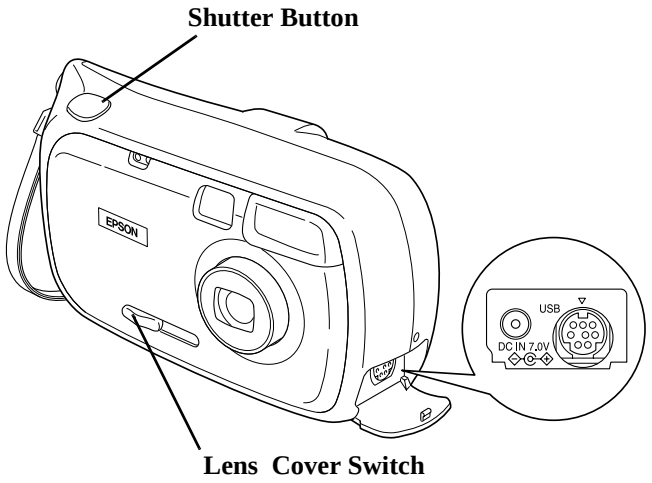


Figure 1-2. Front

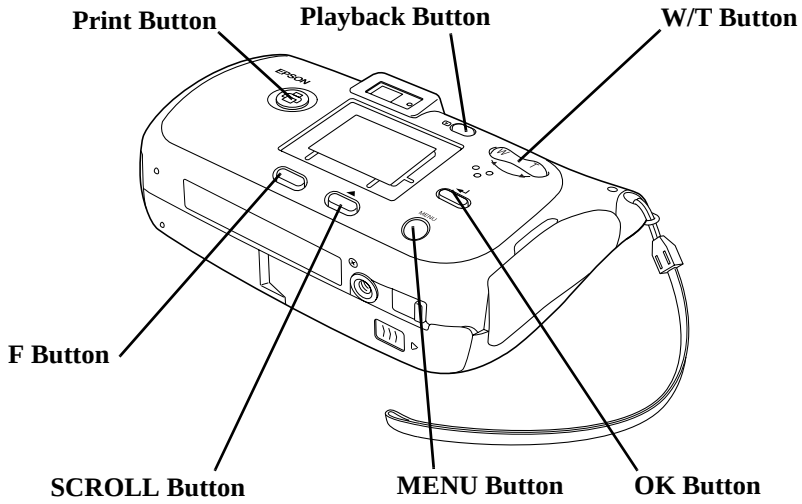


Figure 1-3. Rear

1.3.13 Lens Extending and Retracting Control

Lens extending and retracting are controlled by the opening/closing operation of the lens cover.

- Setting the Lens Cover Switch to “Open” position:
  Opens the lens cover and extends the lens.
- Setting the Lens Cover Switch to “Close” position:
  Retracts the lens and closes the lens cover.
- Lens cover opening/closing switch operation is ignored during communication.
- If the batteries are running down when the lens is in the extended position, the lens is retracted first and then power is turned off.
- After completion of lens retracting
  During a period of 3 second, lens cover OPEN operation can not be detected.

1.3.14 Storage in the Camera

○: Stored, ×: Default, Δ: Conditional

1.3.14.1 Shooting

The table below indicates the conditions under which the camera stores the parameters in shooting mode.

Table 1-14. Storage System in Shooting Mode

Item	Mode Switching Playback Button ON/OFF (Without communication)	Viewfinder ↔ LCD Menu ON/OFF	Power Saving Mode 1 *1	Power Saving Mode 2 *1	After Shooting	Lens Cover Closed Power OFF	After Communication with PC
Self-timer	×	○	×	×	×	×	×
Macro/digital zoom position	○	Δ *2	Δ *2	Δ *2	○	×	×
Backlight compensation	○	○	○	○	○	×	×
Resolution switching between Hypict, Print and e-mail	○	○	○	○	○	○	×
Hyper night scene	○	○	○	○	○	×	×
White balance	○	○	○	○	○	×	×
Flash setting	○	○	○	○	○	×	×
Optical zoom position	○	○	○	×	○	×	×
Sequential numbering of files *5	○	○	○	○	○	○	○

Note: *1: Power saving mode 1: 8-bit sub CPU ON, LED indication, same status as viewfinder mode.
Power saving mode 2: The orange LED flashes (Duty is changed).

*2: Stored in LCD mode. Neither macro shooting nor digital zoom function is available in viewfinder mode.

*3: During function setting (when the tool box is open), only the setting is stored in the status above and the tool box is closed.

*4: No alarm is stored.

*5: Stored in the 8-bit sub CPU.

*6: All the settings return to default status when the lithium battery (backup battery) runs down.

1.3.15 Playback / DPOF

○: Stored, ×: Default, Δ: Conditional

The table below indicates the conditions under which the camera stores the parameters in playback mode.

Table 1-15. Storage System in Playback Mode

Item	Mode Switching Lens Cover / Playback Button (Without communication)	Menu ON/OFF	Power Saving Mode 1	Power Saving Mode 2 *1	Playback Button Power OFF	After Communication with PC
Alert display	×	-	○	×	×	×
Magnified image display	×	-	○	×	×	×
Tool box is open	×	-	○	×	×	×
9-division display mode	×	○	○	○	×	×
Displayed image number	○ *3	○	○	○	×	×
DPOF information	○	○	○	○	○ *2	○
PIM information	○	○	○	○	○ *2	○

Note: *1: The orange LED flashes (Duty is changed).

*2: Stored in the CF card.

*3: The displayed frame number is reset (to the newest number) at shooting by mode switching.

*4: When the lithium battery (backup battery) runs down, all the settings return to default status, except for the DPOF setting and PIM setting stored in the CF card.

1.3.15.1 SETUP

○: Stored, ×: Default Δ: Conditional

The table below indicates the conditions under which the camera stores the parameters in SETUP mode.

Table 1-16. Storage System in SETUP Mode

Item	Mode Switching Lens Cover / Playback Button (Without communication)	Power Saving Mode 1	Power Saving Mode 2 *1	Lens Cover Closed Power OFF	After Communication with PC	Backup Battery Runs Down (Reset)
Date and time	○	○	○	○	○	×
Date indication	○	○	○	○	○	○ *2
Beep setting	○	○	○	○	○	×

Note: *1: The orange LED flashes (Duty is changed).

*2: Stored in the 8Mb flash ROM for program.

1.3.16 Processing Time

- Target start-up time:

  3.8 seconds

- Target processing time

Table 1-17. Target Processing Time (Shooting / Playback)

Image Quality Setting	Minimum time to enable the next shooting	Processing Time for Playback
e-mail	About 5 seconds	About 3 seconds
Print	About 7 seconds	About 9 seconds
Hypict	About 12 seconds	About 10 seconds

1.3.17 File Size and Number of Shots

1.3.17.1 File Size

Table 1-18. File Size

Image Quality Setting	Target File Size
e-mail (720 × 480)	About 70KB
Print (1800 × 1200)	About 500KB
Hypict (2160 × 1440)	About 700KB

Note: *1: The image file size varies with the subject, since image data is compressed and recorded in JPEG format. The sizes indicated above represent approximate average values, given for information only.

1.3.17.2 Average Number of Shots with CompactFlash Memory Card (Approximate Values)

Table 1-19. Average Number of Shots with CompactFlash Memory Card (Approximate Values)

Image Quality Setting	8 MB
e-mail (720 × 480)	About 115 images
Print (1800 × 1200)	About 14 images
Hypict (2160 × 1440)	About 10 images

Note: *1: The number of shots is based on EPSON's measurement conditions.

*2: Each number indicated above is the average number of shots when no data has been stored in the memory. If other files have been stored in the memory, the number of shots permitted decreases depending on the remaining capacity.

*3: Since image data is compressed and recorded in JPEG format, the image file size varies with the subject, thus the number of shots permitted varies. (There may be a case where the average number of shots can not be taken.)

1.3.18 Sequential Numbering of Files

1.3.18.1 Folder Name and File Name

- Folder name

  ΔΔΔEPSON

  - ΔΔΔ: Any of the numbers in the range of 100-999
  - The default is 100EPSON.

- File name

  EPSN□□□□.jpg

  - □□□□: Any of the numbers in the range of 0001-9999
  - The default is EPSN0001.jpg.

1.3.18.2 Fundamental Functions

- The camera stores in its memory both the image folder numbers and the image file numbers as serial numbers.
- Every time the camera takes a picture, the highest file number in the CF card is assigned to the picture to ensure the sequence in which the pictures taken are played back. The highest file number in the CF card is compared with the latest serial number stored in memory. Then, the higher one is assigned to the picture taken.

1.3.18.3 Defining the Highest File Number in CF Card

- If the folder of the highest number in the card is an EPSON folder, the highest file number in that holder is defined as the highest file number in the memory card.
- If the folder of the highest number in the CF card is not an EPSON folder (ex. “100CANON”), a new EPSON folder is created and given a number one higher than the existing highest folder number. When a new picture is taken, an image file with the number 0001.jpg is created as the highest file number in the CF card.

1.3.18.4 Processing for Number 999 Folder

- When the 999EPSON folder stores images, the camera is disabled from shooting (the camera displays the “CF card full to its capacity” status) if the CF card runs out of free space. Then the sequential number is reset to 100EPSON-EPSN0001. At this point, EPSON folders without any image files are deleted.
- Also when EPSN9999.jpg is stored in the 999EPSON folder, the camera is disabled from shooting (the camera displays the “CF card full to its capacity” status). Then, the sequential number is reset to 100EPSON-EPSN0001. At this point, EPSON folders without any image files are deleted.
- Even after the camera is disabled from shooting, changing the resolution may enable the camera to shoot again.
- Even after the camera is disabled from shooting, the camera is enabled to shoot again if there is no EPSN9999.jpg file in the 999EPSON folder and a sufficient free area is restored in the CF card by deleting image files.

1.3.18.5 Others

- Once the “delete all” function is used in playback mode (locked images are not deleted), all EPSON folders with no files are also deleted.
- Sequential numbering is kept even after the CF card is formatted.
- Sequential numbering reset function is not provided.

1.4 Interface Specifications

- USB connector

  The exclusive USB cable must be used.

- AC adapter input

  DC input terminal for AC adapter (7.0V) EIAJ RC-5320 type 3 (compatible with EU-40)

- CompactFlash

  CompactFlash card interface

  CompactFlash Card Type1 is supported.

1.4.1 USB Interface

- Compatible with USB Ver1.1
- 12Mbps high-speed transmission
- Communication speed:
  More than 150 kilobytes/s (varies with PC, however)
- Cable:
  Mini DIN-Type A connector

Table 1-20. USB Connector Pin Assignment

Pin No.	Signal	I/O	Remarks
1	VDD	I	Power
8	D-	I/O	Data signal
6	D+	I/O	Data signal
4	GND	-	GND
SHELL	SHELL	-	SHELL

Note: *1: USB operation is guaranteed even through 5-step connection of hubs.

*2: The USB interface must not be used for any communication other than between a PC and the camera.

1.4.2 AC Adapter Input

- Polarity: Center-plus
- For exclusive use with the AC adapter EU-40 (7.0V 2A)

1.4.3 CompactFlash

- CompactFlash interface
- CompactFlash Card Type1 is supported.
- A capacity of 256MB is available.

1.4.4 Exclusive Communication Cable

1.4.4.1 USB Cable

For exclusive use with PhotoPC 2100Z

Table 1-21. USB Cable

Length	1.5 m
Connector	• Camera: Mini DIN Type A connector • PC: Standard USB connector (A-Type)

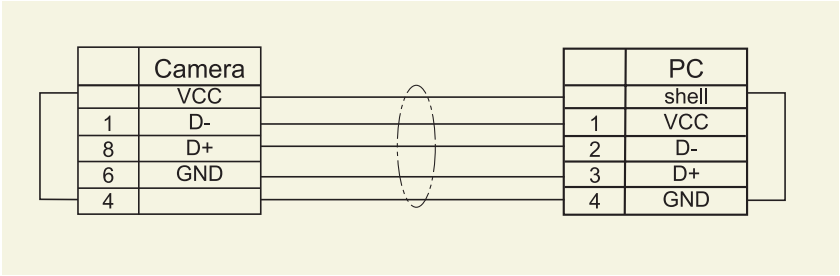


Figure 1-4. USB Cable Connection Diagram

1.4.5 Power Supply

- ☐ Batteries
  - ■ Size AA
  - ■ Four batteries are used
  - ■ Ni-MH rechargeable battery / Ni-cd rechargeable battery / alkali battery / lithium battery

CAUTION

Manganese batteries must not be used.

- ☐ AC power supply
  - ■ Exclusive AC adapter

    EU-40: DC7.0V, 2.0A
- ☐ Internal battery
  - ■ Backup battery to keep date and time (Secondary battery)
  - ■ This battery has a longer life than the product life; users do not need to replace it.

1.4.6 Battery Life

Table 1-22. Battery Life

	Alkali Battery
LCD shooting	145 and more images (Old method) / 200 and more images (New method)
Viewfinder shooting	1000 images or more
Playback	210 minutes

The battery life depends on measurement conditions. The measurement method is provided by EPSON. The conditions are followings;

LCD SHOOTING

☐ Old method

1. Turn on camera, then strat shooting in one minutes interval.
2. No zoom operation, and 50% flash emission.
3. Repeat Step1 and 2.

☐ New method

1. Turn on camera and leaves for 30 seconds, and start shooting 30 seconds interval for 10 times.
2. Shoot and zoom operation between wide end and telescopic end, and 50% flash emission.
3. Turn off the camera for 10 minutes and more after 10 times.
4. Repeat Step 1 to 3.

VF SHOOTING

- Continuous shooting
- No zoom operation
- Flash is off.

PLAYBACK

Frame forwarding interval one minutes.

1.4.7 Power Saving Specifications

This section provides the power saving specifications for PhotoPC 2100Z.

1.4.7.1 Shooting Mode

BATTERY

☐ Power saving mode 1 (The camera enters this mode after 2 minutes of no operation)

Power saving mode 1 is entered after displaying icon animation.

Restoration condition: The camera is restored to the normal status by one of the following events:

- The Shutter Button is pressed.
- The Playback Button is pressed.
- One of the buttons (including the DPOF button) on the back is pressed.
- The W/T Button is pressed.
- The communication cable is connected.

When the communication cable is connected, the camera enters the communication mode.

NOTE: *In the case where the camera enters the power saving mode from flash off status, the flash will not be charged at restoration from power saving mode.*

☐ Power saving mode 2 (The camera enters this mode from power saving mode 1 after 30 seconds of no operation)

Restoration condition: The camera is restored to the normal status by one of the following events:

- The Shutter Button is pressed.
- The Playback Button is pressed.
- One of the buttons (including the DPOF button) on the back is pressed.
- The W/T Button is pressed.
- The communication cable is connected.

  When the communication cable is connected, the camera enters the communication mode.

☐ Complete OFF (Power is turned off from the power saving mode 2 after 2 minutes of no operation)

Table 1-23. Camera Status

	Default	Power Saving Mode 1	Power Saving Mode 2	Complete OFF
LED	ON	ON	ON *1	OFF
LCD Monitor	ON	OFF	OFF	OFF
Lens	ON	ON	ON	OFF
CPU	ON	ON	OFF *2	OFF

Note: *1: The orange LED flashes (Duty is changed).

*2: Startup time is longer than in the viewfinder mode (because of CPU shutdown).

AC ADAPTER

The camera enters the power saving mode1 after 15 minutes of no operation. After further 5 minutes of no operation, power will turn completely off.

1.4.7.2 Playback Mode

BATTERY

☐ Power saving mode 1 (The camera enters this mode after 2 minutes of no operation)

Power saving mode 1 is entered after displaying icon animation.

Restoration condition: The camera is restored to the normal status by one of the following events:

- The Shutter Button is pressed.
- The Playback Button is pressed.
- One of the buttons (including the DPOF button) on the back is pressed.
- The W/T Button is pressed.
- The communication cable is connected.

  When the communication cable is connected, the camera enters the communication mode.

- The Lens Cover Switch is set to the “Open” position.

  When the Lens Cover Switch is set to the “Open” position, the camera enters the shooting mode.

☐ Power saving mode 2 (The camera enters this mode from power saving mode 1 after 30 seconds of no operation)

Restoration condition: The camera is restored to the normal status by one of the following events:

- The Shutter Button is pressed.
- The Playback Button is pressed.
- One of the buttons (including the DPOF button) on the back is pressed.
- The W/T Button is pressed.
- The communication cable is connected.

  When the communication cable is connected, the camera enters the communication mode.

- The Lens Cover Switch is set to the “Open” position.

  When the Lens Cover Switch is set to the “Open” position, the camera enters the shooting mode.

☐ Complete off (Power is turned off from the power saving mode 2 after 2 minutes of no operation)

Table 1-24. Camera Status

	Default	Power Saving Mode 1	Power Saving Mode 2	Complete OFF
LED	ON	ON	ON *1	OFF
LCD Monitor	ON	OFF	OFF	OFF
Lens	ON	ON	ON	OFF
CPU	ON	ON	OFF *2	OFF

Note: *1: The orange LED flashes (Duty is changed).

*2: Startup time is longer than in power saving mode 1.

AC ADAPTER

The camera enters the power saving mode1 after 15 minutes of no operation. After further 5 minutes of no operation, power will turn completely off.

1.4.7.3 Communicate Mode

Table 1-25. Communicate Mode

	Communication
Battery	Power saving is not enabled in the communication mode.
AC Adapter	Power saving is not enabled in the communication mode.

1.4.7.4 SETUP Mode

BATTERY

☐ Power saving mode 1 (The camera enters this mode after 2 minutes of no operation)

Power saving mode 1 is entered after displaying icon animation.

Restoration condition: The camera is restored to the normal status by one of the following events:

- The Shutter Button is pressed.
- The Playback Button is pressed.
- One of the buttons (including the DPOF button) on the back is pressed.
- The W/T Button is pressed.
- The communication cable is connected.

  When the communication cable is connected, the camera enters the communication mode.

☐ Power saving mode 2 (The camera enters this mode from power saving mode 1 after 30 seconds of no operation)

Restoration condition: The camera is restored to the normal status by one of the following events:

- The Shutter Button is pressed.
- The Playback Button is pressed.
- One of the buttons (including the DPOF button) on the back is pressed.
- The W/T Button is pressed.
- The communication cable is connected.

  When the communication cable is connected, the camera enters the communication mode.

- ☐ Complete off (Power is turned off from the power saving mode 2 after 2 minutes of no operation)

Table 1-26. Camera Status

	Default	Power Saving Mode 1	Power Saving Mode 2	Complete OFF
LED	ON	ON	ON *1	OFF
LCD Monitor	ON	OFF	OFF	OFF
Lens	ON	ON	ON	OFF
CPU	ON	ON	OFF *2	OFF

Note: *1: The orange LED flashes (Duty is changed).

*2: Startup time is longer than in the viewfinder mode (because of CPU shutdown).

AC ADAPTER

The camera enters the power saving mode1 after 15 minutes of no operation. After further 5 minutes of no operation, power will turn completely off.

1.5 Accessories

- ☐ AA alkali battery x 4
- ☐ CF memory card 8MB
- ☐ Hand strap
- ☐ Instruction manuals (CR-ROM)
- ☐ USB cable (Exclusive use with PhotoPC 2100Z)
- ☐ CD-ROM install guide
- ☐ Bundle software (EU, Asia only)
  - ■ Photo Suite 3SE (Win)
  - ■ Photo Suite 3 (Mac)
  - ■ Photo Vista Full Version (Win/Mac)

1.6 Option

AC ADAPTER

- Model name:

  EU-40 (same as that for PhotoPC 3000Z)

- Model number:

  B867081, B867131, B867091, B867101, B867121, B867101, B867111, B867151, B867171

- Input voltage:

  AC100-240V, 50-60Hz, 30VA

- Output voltage:

  DC7.0V, 2.0A

NI-MH BATTERY

- Model name:

  EU-24 (same as that for PhotoPC 3000Z)

- Model number:

  B818113-0100

- Input voltage:

  1.2 V per battery

- Capacity

  1500 mAH per battery

NOTE: *Ni-MH batteries are available in a set of four pieces.*

NI-MH BATTERY CHARGER

- Model name:

  EU-38 (same as that for PhotoPC 800)

- Model number:

  B818171-0200, B818181-0100, B818173-0100, B818174-0200, B818175-0200, B818178-0200, B818177-0200, B818182-0000

- Input voltage:

  AC100-240V, 50-60Hz, 10VA

- Output voltage:

  DC1.2V, 490mA × 4

- Charging time:

  2.5 H (when 4 batteries are charged together)

NOTE: *The battery charger is available in a set of one battery charger and four Ni-MH batteries.*

1.7 Environmental Conditions

1.7.1 Operating Conditions / Storage Conditions

- Temperature
  - Operation: 5 to 35°C
  - Storage: -20 to 60°C
- Humidity
  - Operation: 30 to 80%, No condensation
  - Storage: 10 to 80%, No condensation
- Shock resistance

  Storage: G [TBD]

1.7.2 Power Supply Specifications

- DC input voltage (AC adapter)
  - Average: 7.0 VDC
  - Maximum: The AC adapter (EU-40) made by Epson must be used.
- Maximum DC input voltage
  - Maximum: The AC adapter (EU-40) made by Epson must be used.

1.7.3 Intended Location of Use

- Environment:

  Home, outdoors
- Drip-proof:

  Not supported

1.8 Safety Standards & Reliability

1.8.1 EMI and Safety Standards

Table 1-27. EMI and Safety Standards

Market	EMI and Safety Standards
USA	FCC part15 subpart B class B
Canada	CSA C108.8 class B
Europe	EMC Directive 89 / 336 / EEC (CE Marking) EN55022 Class B EN61000-3-2 (When AC adapter is used) EN61000-3-3 (When AC adapter is used) EN55024-1 IEC801-2 IEC801-3 IEC801-4 EN 55022 (CISPR Pub.22) class B
Australia	AS/NZS 3548 class B
Taiwan	EMI: CNS13438-C6357
Korea	Korea electromagnetic wave regulation
Japan	VCCI class B

1.9 Prohibitions and Precautions

- ☐ Never see the sun through the viewfinder.
- ☐ Never use any AC adapter other than the specified one.
- ☐ Never use any batteries other than the specified ones.
- ☐ Remove the batteries when the camera is not to be used for a long time.
- ☐ Do not insert or eject the CF card when power is on.
- ☐ Before replacing the CF card with another one, disconnect USB connection first, if connected, by the procedure specific to the OS and turn off the camera power.

CHAPTER

2

OPERATING PRINCIPLES

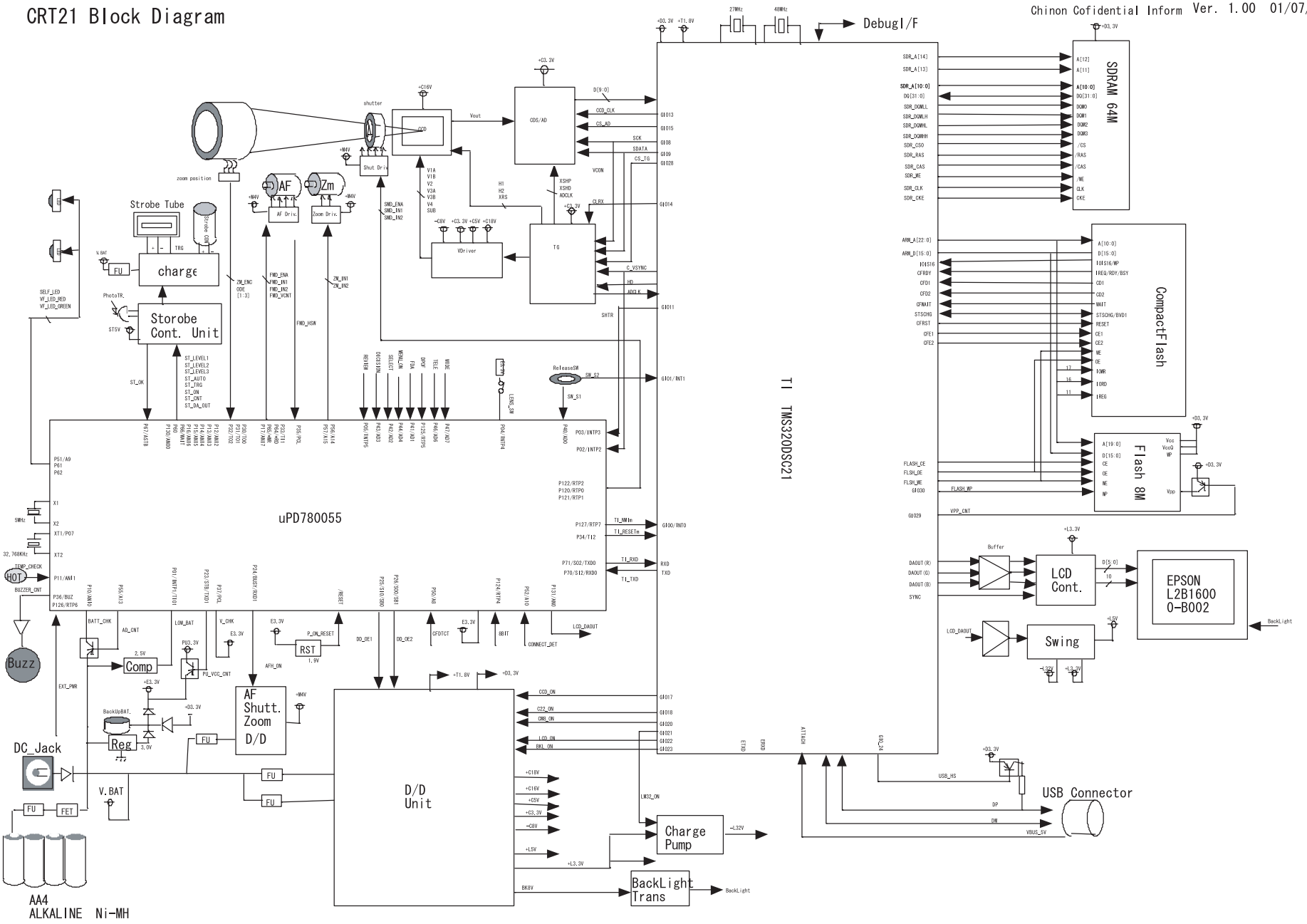
2.1 Overview

This chapter explains operating principles of PhotoPC 2100Z.

2.1.1 Circuit

The circuit block diagram of PhotoPC 2100Z is shown on the next page.

CRT21 Block Diagram



2.1.2 Operating Principles of Control Circuit

This section describes the functions of major elements constituting the circuitry of this camera. The electric circuit of this camera is controlled by two CPUs, namely, the main CPU and the 8-bit CPU.

Table 2-1. Peripheral Elements of Main CPU

Major Element	Functions
CCD	Matsushita MN39471JT ☐ Converts the image formed on the CCD by the lens into an electrical signal. ☐ 1/2.6 inches, 2,310,000 pixels, complementary color filter, interline transfer
Timing Generator (TG)	Matsushita MN5296-1 ☐ This IC generates various drive waveforms to be given to the CCD.
V Driver	Matsushita MN31121SA ☐ This IC drives the vertical transfer register of the CCD.
CDS & A/D	Analog Devices AD9843A ☐ Converts analog signals given from the CCD into 10-bit digital signals. ☐ Incorporates a correlation double sampling circuit (CDS) to remove the reset noise which can occur specifically with CCD.
Main CPU	Texas Instruments TMS320DSC21GHK ☐ CPU and peripheral functions integration chip for digital camera ☐ Signals for CCD, SDRAM controller, flash memory, CompactFlash, USB, and video system interface are integrated. ☐ At shooting, writes the digital data from the CCD circuit in SDRAM and after image processing of the written data followed by image compression, writes in the CompactFlash. ☐ At playback, this CPU reads the data from the CompactFlash and decompresses it, develops the image into DRAM and generates the signal to send the image to the LCD by the Video Controller. ☐ The CPU reads the program written in the flash memory, and operates according to the program. ☐ 27MHz and 48MHz crystal oscillators are connected to the oscillating circuit.

Table 2-1. Peripheral Elements of Main CPU (continued)

Major Element	Functions
SDRAM	HYUNDAI HY57V653220BTC-10 ☐ Connected to the main CPU and used as the buffer memory for image data, buffer memory for video data and memory for program running.
Flash Memory	Sharp LHFA8E09 ☐ The program of the main CPU is written in. ☐ Some area is used to record camera information.
CompactFlash	Records taken pictures.
LCD Controller	EPSON EM1811D ☐ Based on the video signal generated by the main CPU, the LCD controller generates various signals which are necessary to drive the LCD.
Color LCD Unit	EPSON L2B1600-B002 ☐ 1.6-inch collar LCD, with backlight ☐ 237 (horizontal) × 234 (vertical) pixels

Table 2-2. Peripheral Elements of 8-bit CPU

Major Element / Unit	Functions
8-bit CPU	UPD780055GK-A11 ☐ Detects the operations of all the switches for user interface excepting the Release switch, controls all the LEDs, buzzer, flash, shutter, focusing, zooming, battery check and DC-DC converter (main power supply), and has a clock function. ☐ Executes the above control by communication with the main CPU.
Shutter	☐ This shutter works also as the diaphragm. ☐ Incorporated in the lens barrel. ☐ Driven by the shutter driver LB1939T. ☐ Controlled by the SMD__IN1, SMD_IN2 and SMD_EMA signals from the 8-bit CPU.

Table 2-2. Peripheral Elements of 8-bit CPU (continued)

Major Element / Unit	Functions
Focusing Motor	☐ Incorporated in the lens barrel to drive the lens for focusing. ☐ The control signals, namely, FMD_IN1, FMD_IN2, FMD_ENA and FMD_VCNT, from the 8-bit CPU are input into the driver LB1839, which drives the Focusing Motor. ☐ The photo-interrupter located in the lens barrel detects the home position for focusing.
Zoom Motor	☐ The zoom motor, mounted in the lens barrel, drives the zoom lens and retracts the lens barrel. ☐ The control signals, ZM_IN1 and ZM_IN2, from the 8-bit CPU, are input into the motor driver TK10205M, which drives the zoom motor. ☐ The position of the zoom lens is detected by the zoom lens encoder mounted in the lens barrel.
Battery Check	☐ The 8-bit CPU A/D converts and monitors the battery voltage. ☐ A reset IC is mounted separately to ensure safety. (Resetting occurs at a voltage of 2.5V.)
DC-DC Converter	Controls the power supply for the main CPU TMS320DSC21 by the DD_OE1 and DD_OE2 signals from the 8-bit CPU.
Clock	☐ The 8-bit CPU, to which the crystal oscillator 32.768KHz SSP-T5 is connected, has the clock function. ☐ The lithium ion second battery MS614 for backup works to maintain the clock function when the main batteries are removed or the AC adapter is disconnected. ☐ A reset IC is mounted so that clock operation is reset at the minimum guarantee voltage 1.9 V of the 8-bit CPU.

2.1.3 Operating Principles of Power Supply Circuit

2.1.3.1 Power Supply Voltages

Power supplies to PhotoPC 2100Z are as listed below. Each voltage is generated by the voltage supplied from the batteries or the AC adapter.

- ☐ PC3.3V

  3.3 V for CCD
- ☐ PL3.3V

  3.3 V for LCD
- ☐ +1.8V

  1.8 V for CPU
- ☐ +D3.3V

  3.3 V for LOGIC
- ☐ +5V

  For flash, CCD and LCD
- ☐ +C18V

  18 V for CCD
- ☐ +C16V

  16 V for CCD
- ☐ CM7V

  -8 V for CCD
- ☐ BK_8V

  8 V for LCD backlight

A power supply circuit block diagram is shown on the next page.

[PS_block7019e.pdf]

2.1.3.2 Operating Principles of Power Supply Circuit

The control IC (IC1) in the power supply circuit has a 2-channel control system. One channel is used for voltage down by L81 to generate 3.3 V. The other channel is used for voltage boosting and voltage down by the transformer T21 to generate four outputs, namely, +3.3 V, +5 V, +18 V and -8 V.

PC3.3V and PL3.3V are supplied from the 3.3 V of L81 by turning on and off the switching circuit of Q91 and Q94.

Transformer T21 is a flyback circuit of +3.3 V.

+1.8V is generated from +3.3 V and stabilized by the regulator Q71.

+D3.3V is turned on and off by the switching circuit consisting of Q61 of +3.3 V.

+5V is stabilized by Q31.

+C18V is stabilized and turned on and off by Q41.

+C16V is generated from +C18V and stabilized by Q161.

CM7V is generated from -8V and stabilized by Q51.

BK_8V is generated by self-excitation transformer T1 and Q4.

2.1.3.3 Power Supply Circuit on the Main Circuit Board

A power supply circuit (U1806) of 4.8 V is provided for motor drive.

To supply -32V for LCD brightness adjustment, the charge pump circuit U1603 is provided.

2.1.3.4 Power Supply Circuit on Flash Circuit Board

The backlight is turned on by inverter (alternating current waveform) output of BK_6V by t3103. The output connector is CN3104.

2.1.4 Operating Principles of Flash Circuit

The major functions of the flash circuit are to charge the flash capacitor at the flash firing voltage and to fire the xenon flash lamp.

The flash firing voltage is boosted to about 300 V by the oscillating transformer T3101 and charges the flash capacitor. The control signal ST_ON from the 8-bit CPU turns on the transistor Q3105 to start flash charge. Flash charge is completed when Zener diode D3106 sends the ST_OK signal to the 8-bit CPU.

The charge in the flash capacitor is applied to the trigger transformer T3102 by IGBT Q3107 to fire the flash lamp. Flash firing is controlled by the DD_TRIG signal (5V level).

2.1.5 Fuses

The power supply circuit has three fuses.

On the Main Circuit Board, a fuse is mounted for power to the motor.

The fuse for flash circuit is mounted on the Flash Circuit Board.

CHAPTER

3

TROUBLESHOOTING

3.1 Troubleshooting

This section describes how to identify the defective unit or parts from observed problems.

Table 3-1. Troubleshooting

Problem	Possible Cause	Checking and Remedy
LCD shows completely white display at shooting/ playback	Connector between LCD and Main Circuit Board is disconnected, or FFC of LCD broken.	☐ Check connection of connectors CN1105 and 1106 on Main Circuit Board. ☐ Replace LCD if FFC is broken.
	Faulty operation of charge pump which generates -32V in LCD circuit	Replace Main Circuit Board.
LCD shows completely black display	LCD backlight not lit	☐ Check connection of connector CM3104 on Flash Circuit Board.
	Defective LCD	Replace LCD.
	Defective backlight inverter circuit on Flash Circuit Board	Replace Flash Circuit Board.
Black spots are seen on LCD	Defective LCD monitor	☐ Normal if 6 pixels or less ☐ Replace LCD if more.
Bright spots are seen on LCD	Defective LCD monitor	☐ Low-bright spots (pixels seen through 10% ND filter) • Normal if 4 spots or less • Replace LCD if more. ☐ High-bright spots (pixels seen through 5% ND filter) • Normal if 1 spot • Replace LCD if more. ☐ Total of low- and high-bright spots • Normal if 4 spots or less in total • Replace LCD if more.

Table 3-1. Troubleshooting (continued)

Problem	Possible Cause	Checking and Remedy
Taken pictures are completely black	Shorted CCD power supply	Replace Main Circuit Board.
	Faulty operation of shutter	Check initial operation of shutter at power on. • If it does not operate, replace Lens Unit (Lens Assy).
Taken pictures are abnormal	CCD peripheral circuitry broken down	Replace Main Circuit Board.
	Problem with software	Check software version. Install the latest version of firmware.
Date setting screen appears every power on	Insufficient charging of the lithium ion secondary battery	Replace Main Circuit Board if replacement of batteries does not solve problem.
Power does not turn on	Batteries have run down	Replace the batteries.
	Defective AC adapter or faulty connection of AC adapter	Check AC adapter.
	When lens cover switch is operated • FFC of Release Circuit Board is disconnected, or FFC broken	Check connection of connector CN1103 on Main Circuit Board.
	When playback button is pressed • FFC of Rear Cover is disconnected, or FFC broken	Check connection of connector CN1104 on Main Circuit Board.
	Faulty connection of board-to-board connector	Check connection of connector CN1102 on Main Circuit Board.
	Faulty connection of pins BATT1 and BATT2, which connect Power Supply Circuit Board to batteries	Check connection between pins and Power Supply Circuit Board.
	Blown fuse on Power Supply Circuit Board	Replace Power Supply Circuit Board.
	Faulty operation of 8-bit CPU	Replace Main Circuit Board.
Power turns on once, but it turns off immediately	There is a short circuit somewhere, so that Short-circuit protector of DC-DC Converter on Power Supply Circuit Board has operated.	Identify the location of short circuit. For example, CCD terminals.

Table 3-1. Troubleshooting (continued)

Problem	Possible Cause	Checking and Remedy
Power does not turn on, with the camera beeping	Main CPU does not operate, so that 8-bit CPU has displayed an error.	Replace Main Circuit Board.
	Flash memory firmware has disappeared.	Replace Main Circuit Board.
Zooming, shutter or auto focusing does not work	Faulty connection of Lens Barrel FFC on Main Circuit Board	Check to see if FFC is disconnected from connector CN1101 on Main Circuit Board.
	Blown fuse for power to the motor	Replace Main Circuit Board.
	Defective lens barrel	Replace lens barrel.
Shutter does not work	Faulty connection of FFC of Release Circuit Board	Check to see if FFC is disconnected from connector CN1103 on Main Circuit Board.
	Defective shutter switch	Replace Release Circuit Board.
	Shutter release button is out of position.	Check to see if shutter release button is dislocated from its position in Front Cover.
Flash does not fire	Defective Flash Circuit Board	Replace Flash Circuit Board.
	Defective flash lamp	Replace flash lamp.
	Defective lead wires of flash lamp	Replace flash lamp.
	Defective 8-bit CPU	Replace Main Circuit Board.
Viewfinder LED does not light up	Defective LED	Replace Main Circuit Board.
Self-timer LED does not light up	Defective LED on Release Circuit Board	Replace Release Circuit Board.
Switches in the Rear Cover do not work	FFC broken	Check to see if FFC is disconnected from connector CN1104 on Main Circuit Board.
		Replace Rear Cover, if FFC is broken.
	Defective Main Circuit Board	Replace Main Circuit Board.

CHAPTER

4

DISASSEMBLY AND ASSEMBLY

4.1 Overview

This section describes procedures for disassembling the main components of the product.

Unless otherwise specified, disassembled units or components can be reassembled by reversing the disassembly procedure.

4.1.1 Precautions

See the precautions given under the heading “WARNING” and “CAUTION” in the following column when disassembling or assembling the product.

Things, if not strictly observed, that could result in injury or loss of life are described under the heading “Warning”.

Precautions for any disassembly or assembly procedures are described under the heading “CAUTION”.

Chips for disassembling procedures are described under the heading “CHECK POINT”.

If the assembling procedure is different from the reversed procedure of the disassembling, the procedure is described under the heading “REASSEMBLY”.

Any adjustments required after disassembling the units are described under the heading “ADJUSTMENT REQUIRED”.

When you have to remove any units or parts that are not described in this chapter, refer to the exploded diagrams in the appendix.

Read precautions described in the next section before starting.

- **Remove the batteries and plug off the AC adapter before disassembling the camera.**
- **Always wear gloves for disassembly and reassembly to avoid injury from sharp metal edges.**
- **The electrolytic capacitor (C3108) mounted on the circuit board is to fire the flash and to be charged automatically whenever the power is ON. Due to this, it may cause an electric shock during the service procedure. Before starting repair, be sure to discharge the camera, using the cement resistor. (For details, refer to “Rear Cover Removal” on page 53.)**
- **A lithium battery is installed on the main board of this camera. Be sure to observe the following instructions when serving the battery:**

1. Keep the battery away from any metal or other batteries so that electrodes of the opposite polarity do not come in contact with each other.
2. Do not heat the battery or put it near fire.
3. Do not solder on any part of the battery. (Doing so may result in leakage of electrolyte from the battery, burning or explosion. The leakage may affect other devices close to the battery.)
4. Do not dismantle the battery. (The gas inside the battery may hurt your throat. Leakage, burning or explosion may also be caused.)
5. Do not install the battery in the wrong direction. (This may cause burning or explosion.)

- **Dispose of the used batteries according to government's law and regulations.**
- **To protect sensitive microprocessors and circuitry, use static discharge equipment, such as anti-static wrist straps, when accessing internal components.**
- **To avoid dust explosion or ignition, never bring batteries close to flame or throw them into fire.**

CAUTION

- **Use only recommended tools for disassembling, assembling or adjusting the camera.**
- **Observe the specified torque when tightening screws.**
- **Make the specified adjustments when you disassemble the camera. (See Chapter 5 for details.)**
- **For this product, there are two repair levels; first maintenance and 2nd maintenance.**
  The service for second maintenance is allowed to be done only by the service center equipped with special instruments for adjustment. We do not guarantee the repair result performed by the others.
- **Use the special package for transportation.**
- **Prior to disassembly and reassembly, remove the accessories, such as CF card.**

4.1.2 Tools

Use only specified tools to avoid damaging the camera.

Table 4-1. Tools

Name	Availability	Tool Code
Phillips precision screwdriver	○	
Tweezers	○	
Soldering iron	○	
Solder suction tool	○	
Battery Tool	EPSON	1091789
Color Viewer	EPSON	1030584
Strobo adjust chart	EPSON	1091791
AF adjustment chart	EPSON	Attached at the end of this manual, A2 size
RS-232C interface	EPSON	1091792
RS-232C cable	EPSON	1091790
Serial cable (serial 17-pin-DIN 7-pin)	EPSON	1104424
Stabilized DC power supply	○	

Note: "○":available on the market, "EPSON": available from EPSON

4.1.3 Screws

Table below shows the screws used with PhotoPC 2100Z.

Table 4-2. Screws

Name	Specification	Appearance
SPB 1.7x2	SP BOLT 1.7x2 3x0.6	
THB 2x6x3x0.6	THB 2.0x6.3x3.0x0.6	
THB 1.7x4.0	THB 1.7x4.0-3.0x0.6	
THB 1.7x5.5	THB 1.7x5.5-3.0x0.6	
PS 2.0x6.0	PS-tite 2.0x6.0-3.0x0.6	

4.2 Disassembly

The flowchart below shows step-by-step disassembly procedure for PhotoPC 2100Z. When disassembling each component, refer to the page number shown in the figure below.

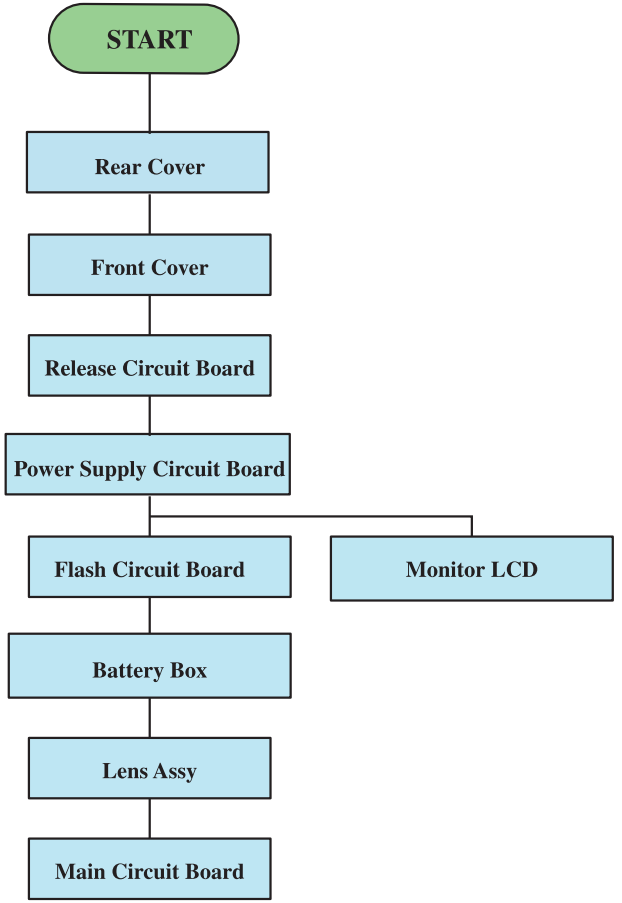


Figure 4-1. Disassembling Flowchart

4.2.1 Housing Disassembly

4.2.1.1 Rear Cover Removal

1. Remove the one screw (THB1.7x5.5) and the four screws (THB1.7x4.0) securing the Rear Cover.

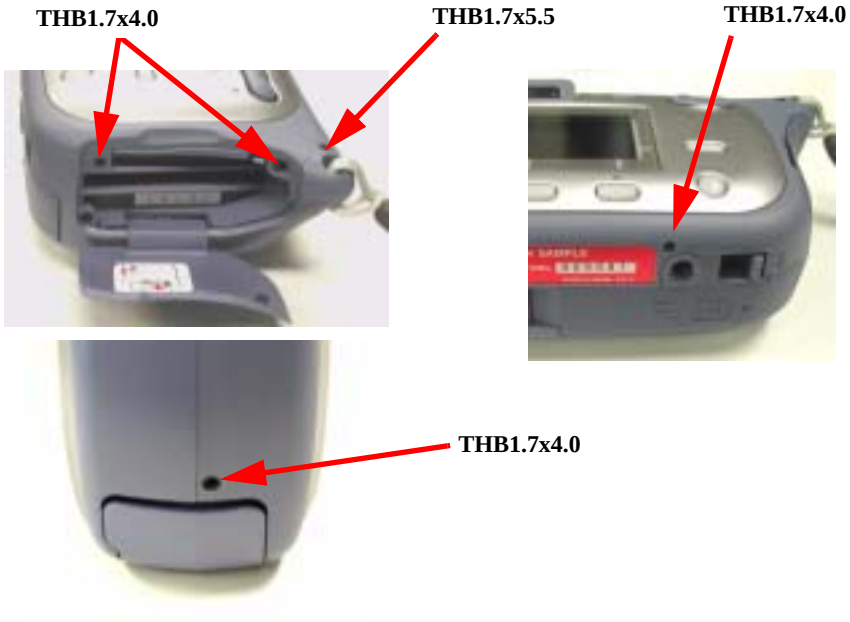


Figure 4-2. Rear Cover Securing Screws

NOTE: *Tightening torque for screws THB1.7X5.5 and THB1.7x4.0: 0.12N·m*

2. Disengage the two hooks with which the Rear Cover and the Front Cover are engaged, and open the Rear Cover.

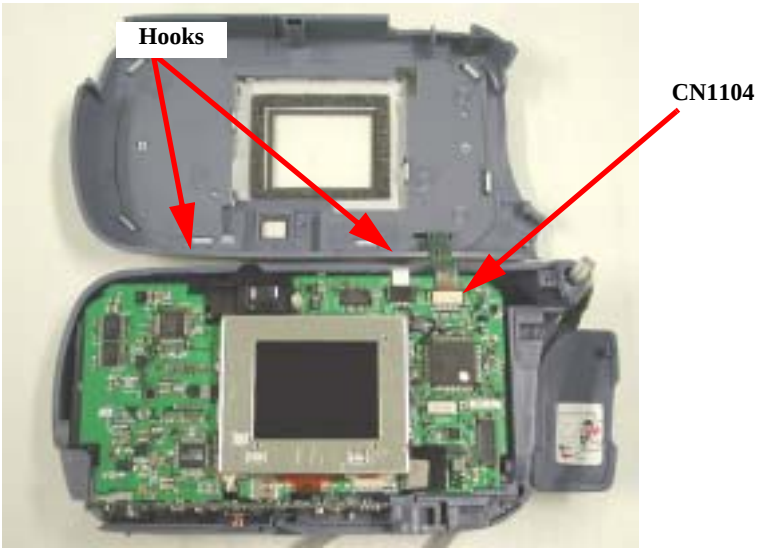


Figure 4-3. Rear Cover Removal

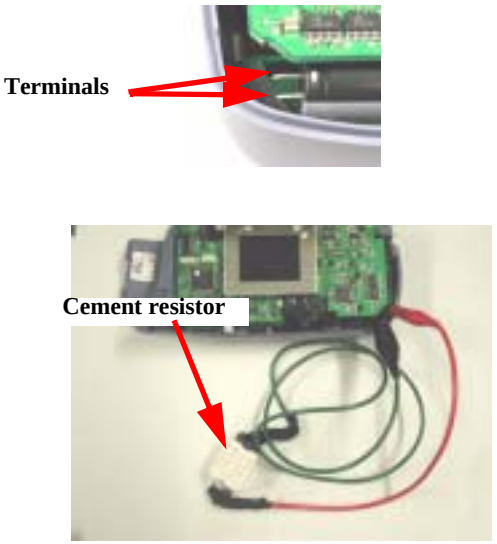
3. Disconnect the FFC of the Rear Cover from the connector CN1104 on the Main Circuit Board. At this point, also the Battery Cap and the connector cover come off.

CHECK POINT

- **When connecting the FFC, make sure that it is free from slanting or floating insertion and be sure to lock the FFC correctly.**
- **Take care not to catch the FFC between the Front Cover and the Rear Cover.**

WARNING

When the Rear Cover has been removed, the terminals of the capacitor C3108 for flash firing appears at the upper left corner of the camera. Be sure to discharge the capacitor using a cement resistor. (Use a cement resistor with a resistance of about 500Ω to 1 kΩ/10W.)



4.2.1.2 Front Cover Removal

1. Remove the Rear Cover. (See "Rear Cover Removal" on page 50)
2. Remove the three screws (THB1.7x4.0) securing the Front Cover.

NOTE: *Tightening torque for the screw THB1.7x4.0: 0.12N·m*

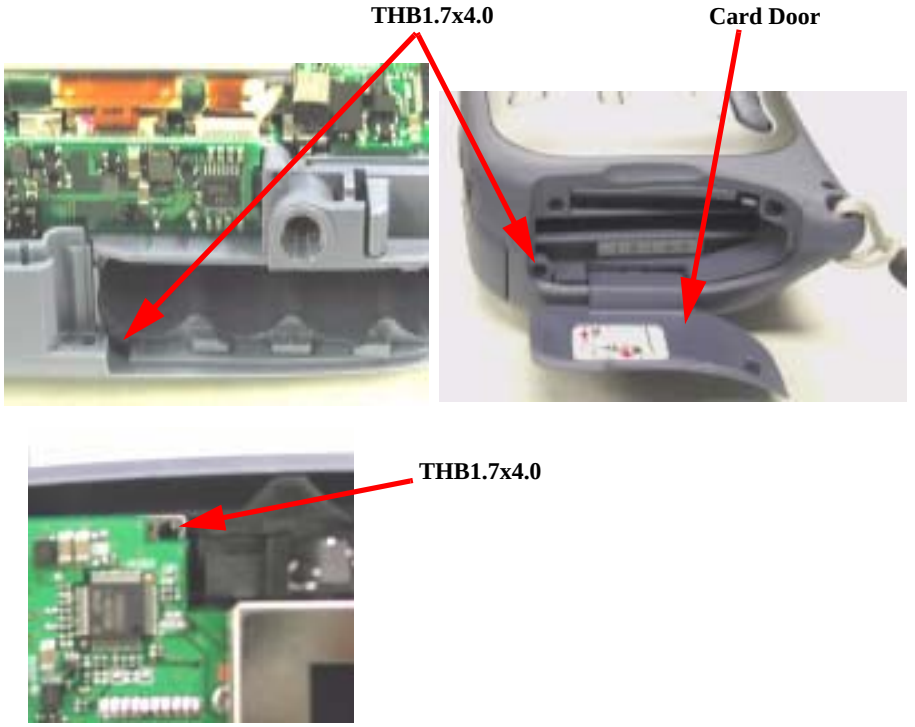


Figure 4-4. Front Cover Securing Screws

3. Remove the Front Cover. At this point, the card door comes off together.

CHECK POINT

■ **Before installing the Front Cover, clean the inside of the lens cover with a blower.**

4.2.1.3 Front Cover Disassembly

1. Disengage the seven hooks fastening the Face Plate to the Front Cover.

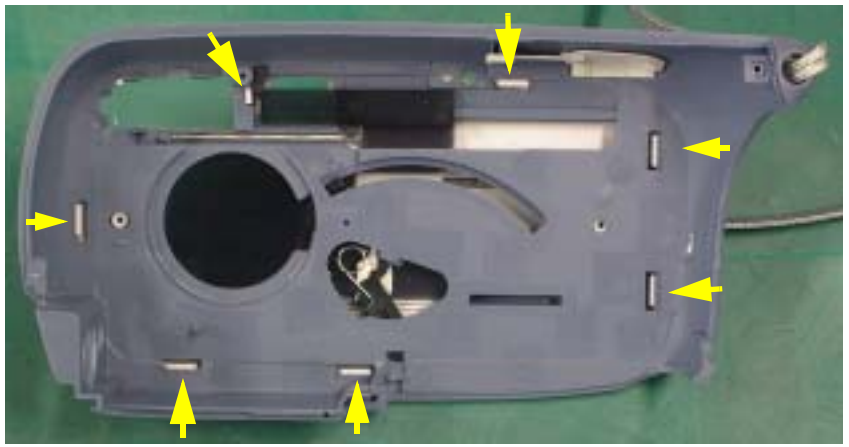


Figure 4-5. Fastening Hooks

2. Remove the face cover.

CAUTION

- **When the face cover is removed, the Flash Window and Self-timer Window come off together. Take due care not to lose any parts.**
- **The Viewfinder Window is fixed to the Front Cover with double adhesive tape.**

4.2.2 Disassembly of Circuit Boards

4.2.2.1 Release Circuit Board Removal

1. Remove the housing. (See "Housing Disassembly" on page 50)
2. Disconnect the FFC of the Release Circuit Board from the connector CN1103 on the Main Circuit Board.
3. Remove the two screws (THB1.7x4.0) securing the Release Circuit Board.

NOTE: *Tightening torque for the screw THB1.7x4.0: 0.12N·m*

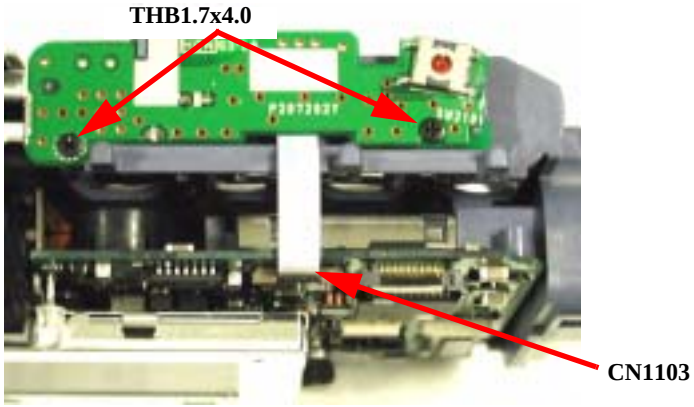


Figure 4-6. Release Circuit Board Securing Screws

4. Remove the Release Circuit Board.

CHECK POINT

When connecting the FFC, make sure that it is free from slanting or floating insertion and be sure to lock the FFC correctly.

4.2.2.2 Power Supply Circuit Board Removal

1. Remove the housing. (See "Housing Disassembly" on page 50)
2. Remove the one screw (THB1.7x2.5) and the one screw (SPB1.7x4.0) securing the Power Supply Circuit Board.

NOTE: *Tightening torque for the screws SPB 1.7x2.5 and THB1.7x4.0: 0.12N·m*

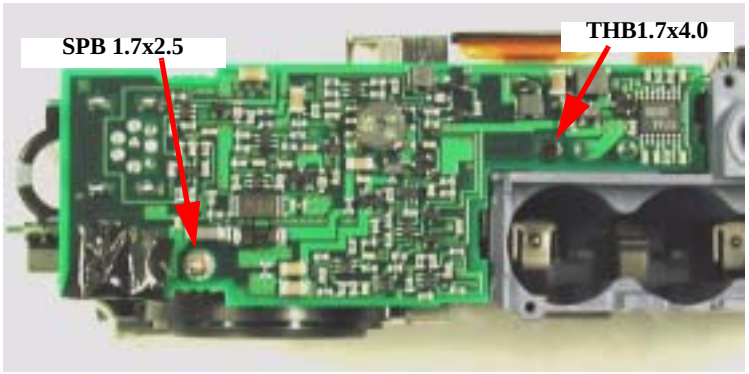


Figure 4-7. Power Supply Circuit Board Securing Screws

3. Remove the Power Supply Circuit Board downward.

CHECK POINT

When installing the Power Supply Circuit Board in the battery box, make sure that the connector of the battery box and the terminal of the circuit board are connected correctly, without floating from each other.

4.2.2.3 Monitor LCD Removal

1. Remove the housing. (See "Housing Disassembly" on page 50)
2. Remove the Power Supply Circuit Board. (See "Power Supply Circuit Board Removal" on page 53)
3. Disconnect the harness for the backlight from the connector CN3104 on the Flash Circuit Board.

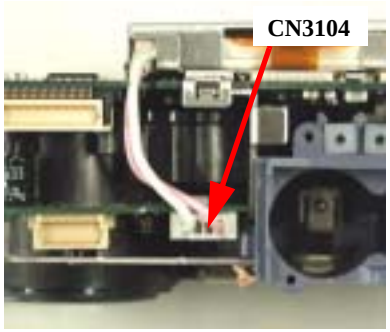


Figure 4-8. Connector CN3104

4. Remove the one screw (SPB1.7x4.0) securing the Monitor Fixing Frame.

NOTE: *Tightening torque for the screw SPB 1.7x2.5: 0.12N·m*

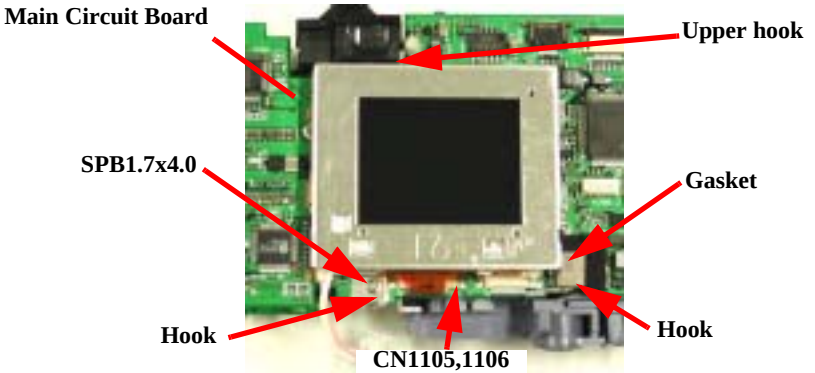
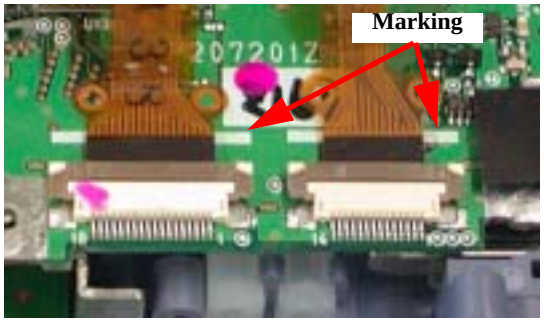


Figure 4-9. Monitor Fixing Frame Securing Screws

5. Disengage the two hooks fastening the bottom end of the Fixing Frame to the Main Circuit Board, and disengage the upper hook of the LCD from the Main Circuit Board.
6. While lifting the Monitor LCD, disconnect the FFC from the connectors CN1105 and CN1106 on the Main Circuit Board.
7. Remove the Monitor LCD.

CHECK POINT

■ **When connecting the FFC, make sure that it is free from slanting or floating insertion and be sure to lock the FFC correctly. Insert the FFC until its connecting portion is aligned with the marking on the Main Circuit Board.**



CAUTION

Do not touch with bare hand the gasket of the Monitor LCD, which is grounded to the switch circuit board of the Rear Cover.

4.2.2.4 Flash Circuit Board Removal

1. Remove the housing. (See "Housing Disassembly" on page 50)
2. Remove the Power Supply Circuit Board. (See "Power Supply Circuit Board Removal" on page 53)
3. Peel off the insulating tape applied to the capacitor C3108 for flash firing.

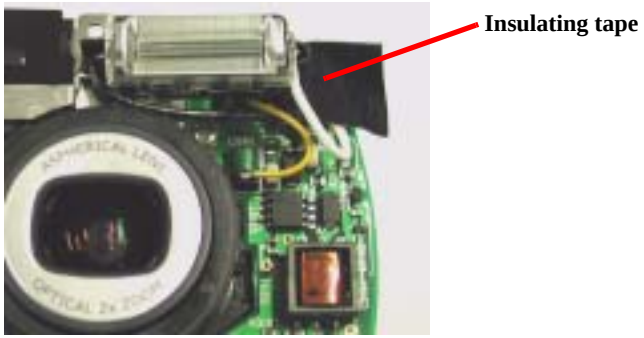


Figure 4-10. Insulating Tape

4. Unsolder the three soldered joints of the Flash Tube lead wires with a soldering iron, and remove the Flash Tube by inclining it clockwise slightly.

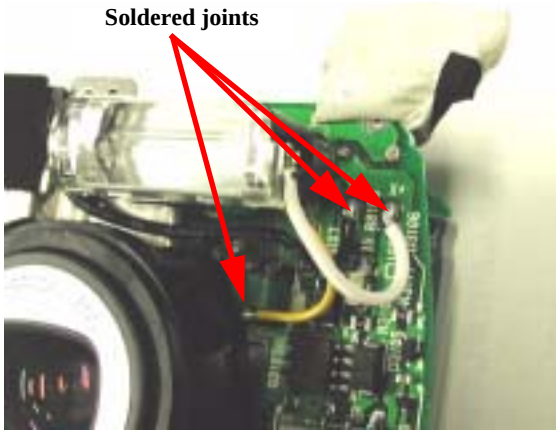


Figure 4-11. Soldered Joints of Flash Tube Lead Wires

CAUTION

When soldering the Flash Tube lead wires, take care not to produce any solder horn or bridge, which can cause abnormal electric discharge.

5. Remove the one screw (SPB1.7x2.5) securing the Flash Circuit Board.

NOTE: *Tightening torque for the screw SPB 1.7x2.5: 0.12N·m*

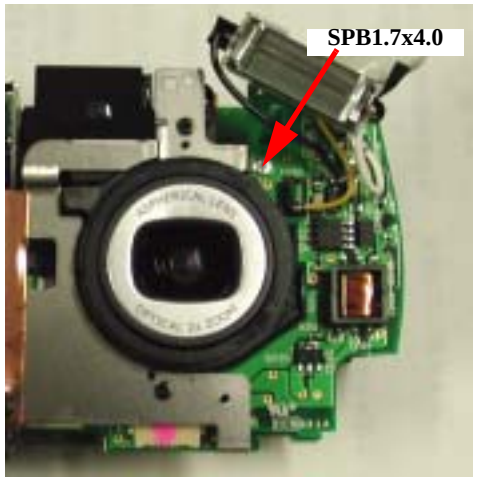


Figure 4-12. Flash Circuit Board Securing Screw

6. Remove the Flash Circuit Board.

CHECK POINT

When installing the Flash Circuit Board, make sure that the circuit board is installed in the groove in the battery box.

4.2.2.5 Battery Box Removal

1. Remove the housing. (See "Housing Disassembly" on page 50)
2. Remove the Power Supply Circuit Board. (See "Power Supply Circuit Board Removal" on page 53)
3. Remove the Flash Circuit Board. (See "Flash Circuit Board Removal" on page 54)
4. Remove the Eject Button from the CF card slot using tweezers, and place the Eject Lever on the lens side.
5. Remove the one screw (THB1.7x4.0) securing the copper foil and battery box.

NOTE: *Tightening torque for the screw THB1.7x4.0: 0.12N·m*

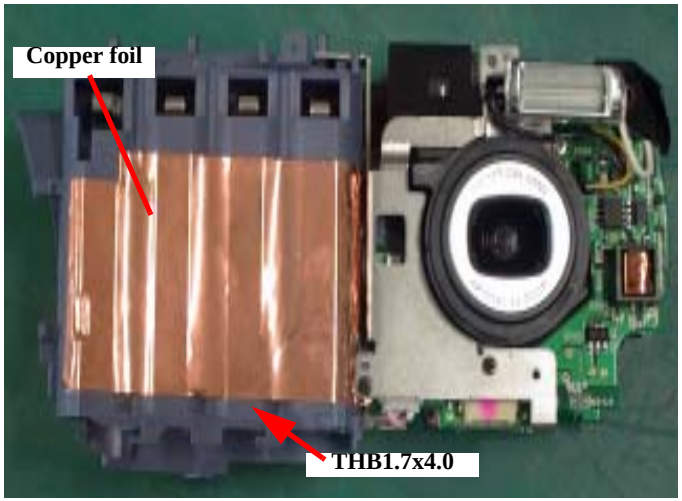


Figure 4-13. Copper Foil Securing Screws

CAUTION

Do not touch the copper foil with a bare hand. A surface of the copper foil oxidized due to soiling could lower the capacity to resist radiation noise.

6. Remove the one screw (THB1.7x4.0) securing the Main Circuit Board and Battery Box.

NOTE: *Tightening torque for the screw THB1.7x4.0: 0.12N·m*

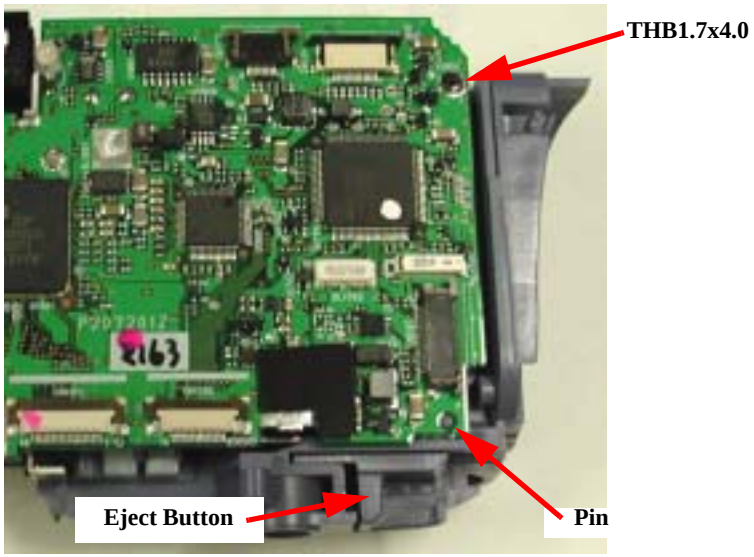


Figure 4-14. Main Circuit Board / Battery Box Securing Screw

7. Disengage the pin of the Battery Box from the Main Circuit Board.

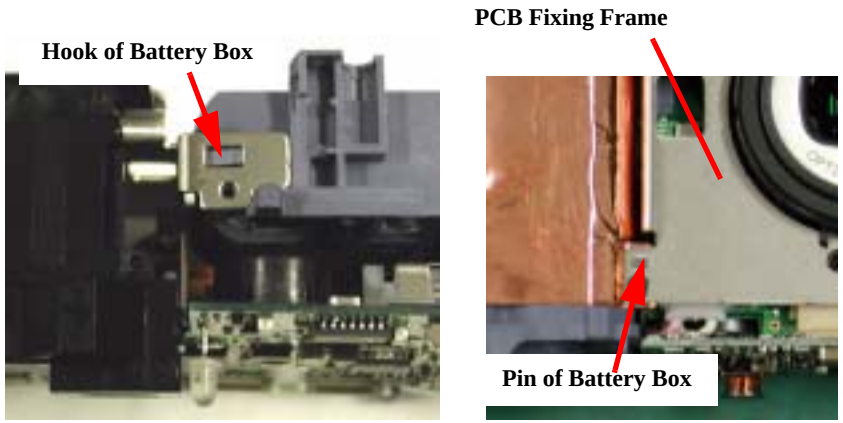


Figure 4-15. Hook and Pin of Battery Box

8. Disengage the hook and pin of the Battery Box from the PCB Fixing Frame.
9. Remove the Battery Box.

4.2.2.6 Lens Assy (Lens & CCD Unit) Removal

1. Remove the housing. (See "Housing Disassembly" on page 50)
2. Remove the Power Supply Circuit Board. (See "Power Supply Circuit Board Removal" on page 53)
3. Remove the Flash Circuit Board. (See "Flash Circuit Board Removal" on page 54)
4. Remove the Battery Box. (See "Battery Box Removal" on page 56)
5. Disconnect the FFC connecting the Lens Assy to the Main Circuit Board from the connector CN1101 on the Main Circuit Board.

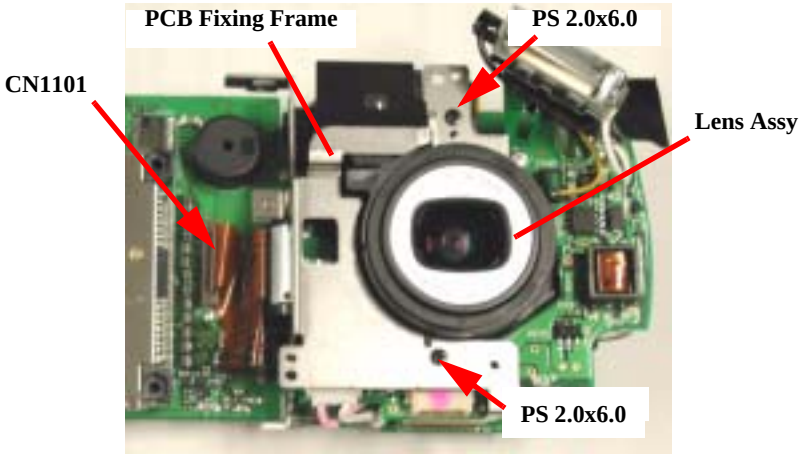


Figure 4-16. Lens Assy

6. Using a solder suction tool, remove the solder from the CCD terminals at which the Lens Assy is soldered to the Main Circuit Board.

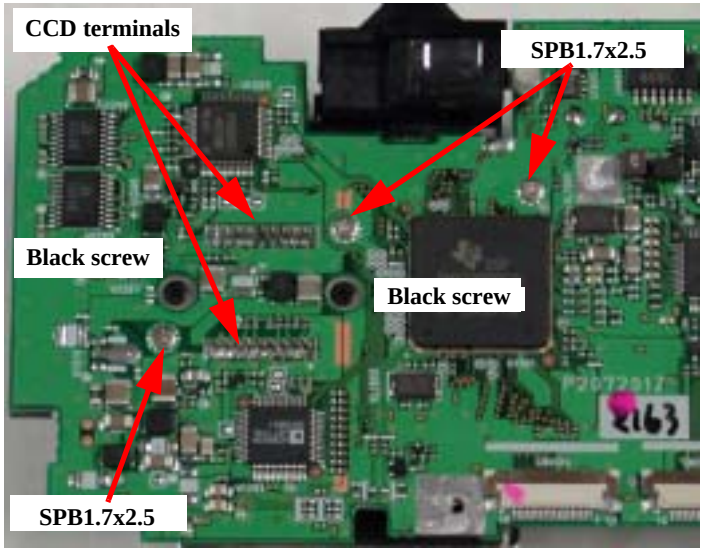


Figure 4-17. CCD Terminals

CAUTION

- **When soldering the CCD terminals, solder the grounding terminal of CCD first. This is intended to prevent the effect of static electricity.**
- **When soldering the CCD terminals, make sure that the soldered joints are free from soldering defects, such as solder bridge or solder spikes.**
- **When connecting an FFC to the connector, make sure that it is free from floating or slanting insertion or incomplete lock by the connector.**

7. Remove the two screws (PS 2.0x6.0) which secure the PCB Fixing Frame to the Lens Assy. (See Figure 4-16)

NOTE: *Tightening torque for the screw PS 2.0x6.0: 0.25N·m*

8. Remove the three screws (SPB 1.7x2.5) which secure the Lens Assy and PCB Fixing Frame to the Main Circuit Board, and remove the Lens Assy, together with the PCB Fixing Frame, from the Main Circuit Board. (See Figure 4-17)

NOTE: *Tightening torque for the screw SPB 1.7x2.5: 0.12N·m*

CAUTION

Do not remove the two black screws of the Lens Assy, which connect the CCD and the lens barrel to each other. If you remove them, dust or other foreign matters could adhere to the CCD.

CHAPTER

5

ADJUSTMENT

5.1 Overview

This section describes the adjustments required according to service components once they have been replaced and also describes procedures for such adjustments.

The table below shows the adjustments required when components have been replaced.

Table 5-1. Adjustments Required Once Relevant Components have been Replaced

	Sequence in which Adjustments should be Made						
	1. Firmware Installation	2. BC Compensation	3. LCD Compensation	4. CCD Adjustment	5. AF Compensation	6. Strobo adjust	7. USB ID Writing
Flash Tube						○	
Battery Box						○	
Front Cover						○	
Rear Cover							
Battery Cap							
Lens Assy				○	○	○	
PCB Fixing Frame						○	
Monitor Fixing Frame							
Monitor Window							
Eye-piece Window							
Connector Door							
Card Door							
Eject Button							
Main Circuit Board	○	○	○	○	○	○	○
Release Circuit Board						○	
Flash Circuit Board						○	
8P FFC						○	
Monitor LCD			○				
Power Supply Unit (DC/ DC Unit)		○	○	○	○	○	

Note: ○: Required

5.2 Tools

5.2.1 Tools

The table below lists the tools needed for adjustments of PhotoPC 2100Z.

Table 5-2. Adjusting Tools

Adjustment Items	Tool	Tool Code
BC adjustment	Battery Tool	1091789
LCD adjustment	RS-232C I/F	1091792
	RS-232C cable	1091790
LCD adjustment / USB ID writing	Serial cable	1104424
CCD gain adjustment, shutter compensation and black defect input & white defective compensation	Color viewer	1030584
Strobo adjustment	Strobo adjust chart	1091791
AF adjustment	AF adjustment chart	Attached at the end of this manual

5.2.2 Adjustment Programs

The adjustment items require the respective adjustment programs. For use, register adjustment programs in CF cards, respectively.

Table below shows the adjustment items and files.

Table 5-3. Adjustment Programs

Adjustment Item	File Name
"BC (Battery Check) Compensation Value Writing"	BC.c21
"LCD (Brightness) Adjustment"	1. CRT21ma.exe 2. LCD.c21
"CCD Gain Adjustment, Shutter Compensation Black Defect Writing and White defect compensation",	CCD.c21
"Strobo Adjustment"	Strobe.c21
"AF (Auto Focus) Compensation"	AF.c21
"USB ID Writing"	1. CRT21sp.exe 2. USB.c21

CAUTION

- **The PC to be used must be of a model which permits use of the USB interface on Windows 98 or a later operating system.**
- **Only one program file must be stored in one CF card if the file name has an extension "c21". If two or more program files with an extension "c21" are stored in one CF card, proper selection of the program to be executed by the camera will not be ensured.**
- **When storing a program in a CF card, pay attention to the property of the file. If the property is "read only", the camera can not execute the program. And, check a mark on the archive check box in the property, otherwise the camera can not execute it too.**
- **When all the adjustments to be made, perform "BC (Battery Check) Compensation Values Writing" first. The other adjustments can be performed in any sequence. These adjustments include the initialization of the adjusted value storage area in the camera.**
- **Once "BC (Battery Check) Compensation Values Writing" is performed, be sure to perform all the other adjustments subsequently, without omitting any of them.**
- **Once any error occurs during execution of an adjustment, perform the same adjustment again under the same conditions. (See "Explanation of Error Codes" on page 62)**
- **If an error recurs, check for proper conditions under which the adjustment is performed.**
- **When performing any of the CCD adjustment, AF adjustment and Strobo adjust, make sure that the lens cover is open.**

CAUTION

- **Without firmware installation, the adjustment by CF card has the counter that control to adjustment count on each adjustment item. The counter is up to ten times. When count up, the camera will not accept more adjustment setting. At that time, perform the following program;**
  Erase.c21
  How to use is the same as another extension "c21" files. But, if you perform the above program once, you must perform the adjustments again from BC adjustment to USB writing. Because, this program reset the adjustment value without the firmware.

5.2.3 Explanation of Error Codes

If any error occurs during execution of these adjustment programs, the LCD monitor of the camera displays the error code. This section describes the errors signified by the respective error codes and corrective actions to be taken at the occurrence of such errors.

- 0: Any error other than specified
  - Corrective action
    Perform the adjustment again.
- 1: Battery adjustment error
  - Corrective action
    Check the conditions under which the adjustment is performed. For example, check the power voltage and camera temperature.
- 2: CCD adjustment error
  - Corrective action
    Check the conditions under which the adjustment is performed. Perform the adjustment again and if a similar error recurs, replace the Lens Assy (with CCD) with a new one.
- 3: CCD adjustment error
  - Corrective action
    Check the conditions under which the adjustment is performed. Perform the adjustment again and if a similar error recurs, replace the Lens Assy (with CCD) with a new one.
- 4: CCD adjustment error
  - Corrective action
    Check the conditions under which the adjustment is performed. Perform the adjustment again and if a similar error recurs, replace the Lens Assy (with CCD) with a new one.
- 5: Strobo adjustment error
  - Corrective action
    Check the conditions under which the adjustment is performed. Perform the adjustment again and if a similar error recurs, replace the PCB-Strobe Assy with a new one.

- 6: AF adjustment error
  - Corrective action
    Check the conditions under which the adjustment is performed. Perform the adjustment again and if a similar error recurs, replace the Lens Assy (with CCD) with a new one.
- 20: Adjusted value writing error
  - Corrective action
    Check the conditions under which the adjustment is performed. Perform the adjustment again and if a similar error recurs, replace the PCB-MCU Assy with a new one.
- 30: Camera adjustment execution error
  - Corrective action
    Check the conditions under which the adjustment is performed. Perform the adjustment again and if a similar error recurs, replace the PCB-MCU Assy with a new one.
- 40: Brightness box error
  - Corrective action
    Check the conditions under which the adjustment is performed. Perform the adjustment again and if a similar error recurs, replace the Lens Assy (with CCD) with a new one.

CAUTION

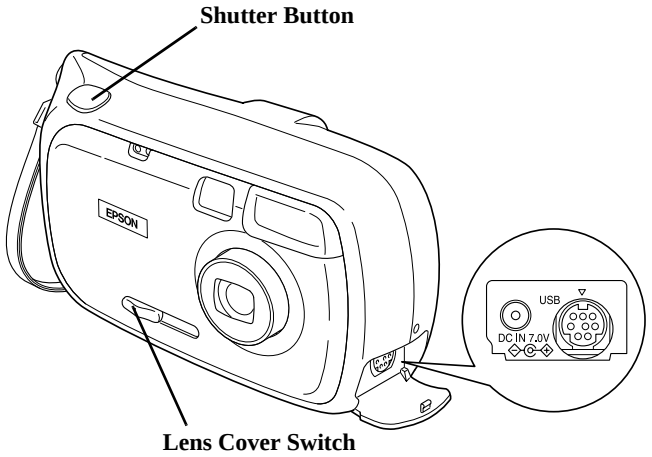
These errors may occur on rare occasions. If any error occurs, first check the conditions under which the adjustment is performed.
Once the camera is disassembled or a new component or unit is installed, be sure to check for proper reassembly or installation, especially for proper connection of connectors.

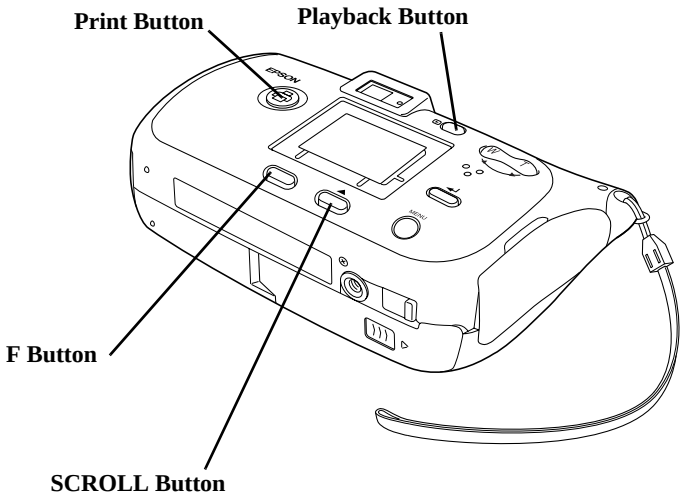
5.3 Adjustment

5.3.1 Installation of firmware

5.3.1.1 Version Confirmation

1. Press the F Button and the SCROLL Button simultaneously, and the camera will enter SETUP mode.





2. Hold down the Print Button.
3. The version of firmware is displayed on the LCD monitor at its top left.

5.3.1.2 Installation

1. Copy firmware into a CF card beforehand.
2. Make sure that power to the camera is OFF, and then set the CF card in the camera.
3. While pressing the F Button and Shutter Button together, push Playback Button to turn on power to the camera. The LCD will show “DOWNLOAD MODE” first and then “ERASING FLASH”.
4. Installation of firmware will automatically be started and upon completion of installation, power to the camera will automatically turn off. (About 2 minutes)

CAUTION

- **When inserting or removing the CF card, make sure that power to the camera is OFF. Especially, remember that removal of the CF card during writing in the card could result in a malfunction of the card.**
- **For firmware installation, use the AC adapter. If power to the camera turns off during installation of firmware, not only installation can not be executed normally, but also flash memory on the circuit board could be damaged.**

5.3.2 BC (Battery Check) Compensation Value Writing

This adjustment is executed in order to input the threshold values for battery check into flash memory on the Main Circuit Board. This adjustment includes the initialization of the adjusted value storage area in the camera.

1. Close the lens cover of the camera.

Figure 5-1. Battery tool

2. Install the battery tool (No.1091789) in the Battery Box of the camera.
3. Connect the stabilized power supply to the battery tool. Set the voltage in the range of 3.95 to 4.05V.

CAUTION

- **Do not confuse the polarity of the cable of the battery tool; Red cable: positive terminal, Black cable: negative terminal**
- **Do not input the camera over 11V. Otherwise, the camera will have serious damage.**

4. Insert into the camera the CF card in which the BC compensation program has been installed.
5. Hold down the F Button and Shutter Button together and press the Playback Button, and the BC compensation values will be written.
6. BC compensation is completed when “OK” is displayed on the monitor of the camera.
7. Press the shutter button fully to turn off power to the camera.
8. Remove the CF card from the camera.
9. Remove the battery tool from the camera.

5.3.3 LCD (Brightness) Adjustment

Adjust the brightness on the monitor to optimize the contrast of display on the monitor. Adjusted values are written in flash memory on the Main Circuit Board.

1. Open the lens cover of the camera.
2. Connect the AC adapter and RS-232C cable (Part 1091790) to the camera.

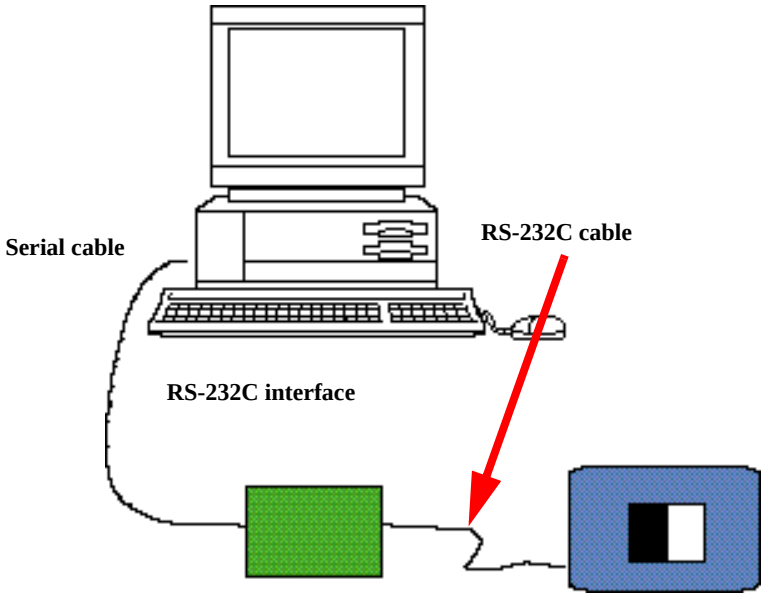


Figure 5-2. LCD Adjustment

3. Connect the RS-232C cable to the RS-232C interface (Part 1091792). Then connect the RS-232C interface to the serial port of the PC with Serial cable (Part 1104424).

CAUTION

- **With the PC having two or more serial ports, use COM1 port, if possible.**
- **When connect the camera to PC by the RS-232c interface, connect the following figure. Do not misconnect the cables, otherwise the RS-232C interface board may have damage.**

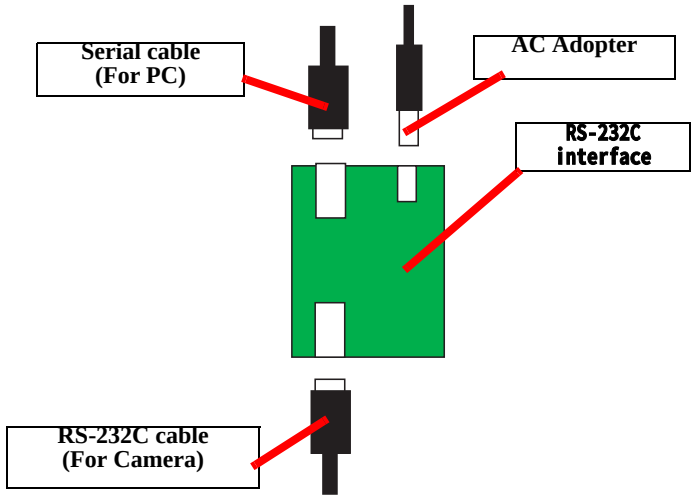


Figure 5-3. Cable connection

- **Connect the AC adopter EU-40 to the interface as a power supply.**

4. Run the LCD adjustment program (CRT21ma.exe) on the PC.
5. Insert into the camera the CF card in which the LCD adjustment program has been installed.
6. Hold down the F Button and Shutter Button together and then press the Playback Button.
7. Push the "+" button on the adjustment window of the PC until the adjustment patter appears on the LCD monitor.(Refer to Figure 5-4.)
8. While observing the monitor screen of the camera, adjust the brightness, by pressing the "+" or "-" button on the adjustment window of the PC, so that both the black area and white area are seen clear at the same time (a maximum contrast is observed).

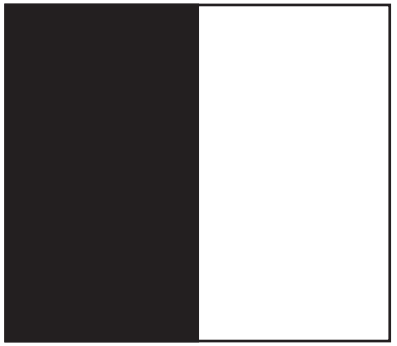


Figure 5-4. LCD Adjustment Pattern

- "+" button
  Raise the brightness of LCD.
- "-" button
  Lower the brightness of the LCD.

9. Upon completion of brightness adjustment above, press the "Write" button on the adjustment window of the PC, and the monitor of the camera will display "OK".
10. Pressing the Shutter Button fully will turn off power to the camera to complete the adjustment.
11. Remove the CF card from the camera.
12. Disconnect the AC adapter and the communication cable from the camera.
13. Pressing the "e" key will complete the adjustment program.

5.3.4 CCD Gain Adjustment, Shutter Compensation Black Defect Writing and White defect compensation

The adjustments to be made here are CCD gain adjustment, shutter compensation and compensation of CCD pixel defects (loss of pixels). Adjusted values are written in flash memory on the Main Circuit Board.

1. Open the lens cover of the camera.
2. Connect the AC adapter to the camera.
3. Insert into the camera the CF card in which the program for CCD gain adjustment, shutter compensation and black defect adjustment has been installed.
4. Place the camera close to (at 10 mm or less from) the color viewer at its center.

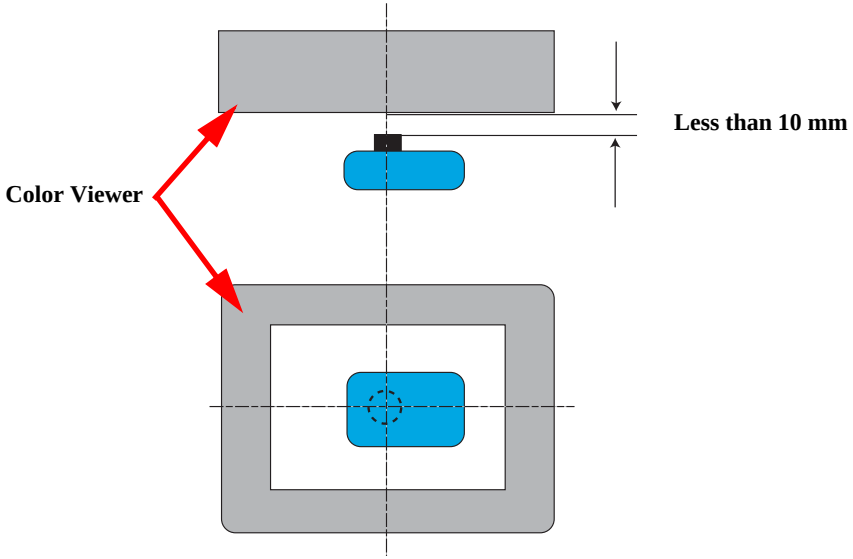


Figure 5-5. Placing the Camera in front of the Color Viewer

5. Hold down the F Button and Shutter Button together and then the Playback Button, and CCD gain adjustment, shutter compensation and black defect writing will be started.
6. Upon completion of preparation, press the Shutter Button fully.
7. The adjustment is completed when “OK” is displayed on the monitor of the camera.
8. Pressing the shutter button fully will turn off power to the camera.
9. Remove the CF card from the camera.
10. Close the lens cover of the camera.
11. Disconnect the AC adapter from the camera.

5.3.5 Strobo Adjustment

This process adjusts the amount of flash light with the lens positioned on the WIDE (wide-angle) side and TELE (telescopic) side. Adjusted values are written in flash memory on the Main Circuit Board. For this adjustment, use of a dark box or dark room is desirable. Instead, however, you can use a room which is so prepared that no external light enters directly.

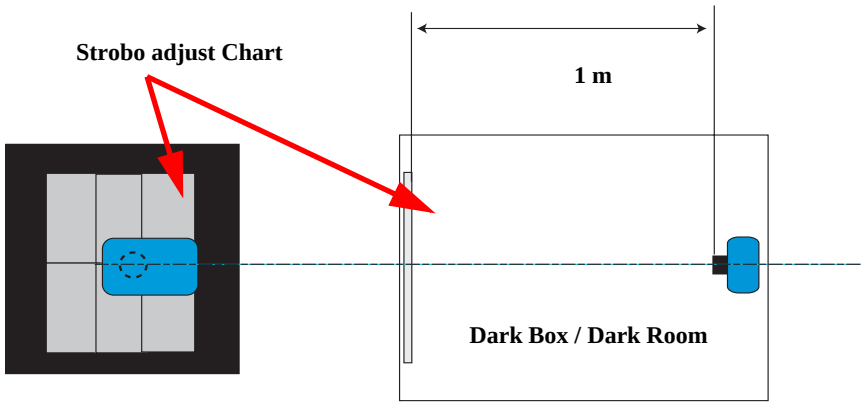
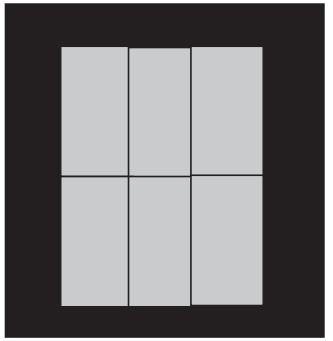


Figure 5-6. Strobo adjustment

☐ Preparation for Adjustment

- Stick six sheets of Strobo adjust charts (No.1091791) on a wall or board so that there is no clearance between the six.
- The wall or board to put those Strobo adjust charts on must be of a low reflectivity. If the surface of the wall or board is bright, stick the charts on a black sheet of paper wide enough.
- To stick the six charts on the wall or board, use double adhesive tape between the sheets and the wall or board so that no tape is seen from the camera side.



☐ Adjustment Procedure

1. Open the lens cover of the camera.
2. Connect the AC adapter to the camera.
3. Insert into the camera the CF card in which the Strobo adjust program has been installed.
4. Place the camera at a position where the distance from the chart to the lens surface with the lens on the WIDE side is 1 meter. In doing so, orient the camera correctly toward the chart.
5. Hold down the F Button and Shutter Button together and then press the Playback Button.
6. Upon completion of preparation, press the Shutter Button fully.
7. The flash fires one time on each of the WIDE side and TELE side.
8. At completion of adjustment, “OK” is displayed on the monitor of the camera.
9. Press the Shutter Button fully to turn off power to the camera.
10. Remove the CF card from the camera.
11. Disconnect the AC adapter from the camera.

CAUTION

Do not move the camera during adjustment.

5.3.6 AF (Auto Focus) Compensation

In this adjustment, the adjusted values for AF in-focus positions are written into flash memory on the Main Circuit Board.

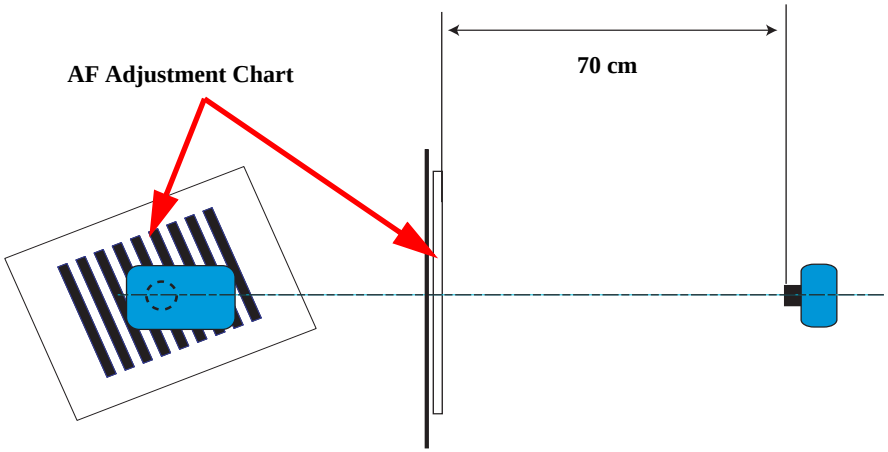


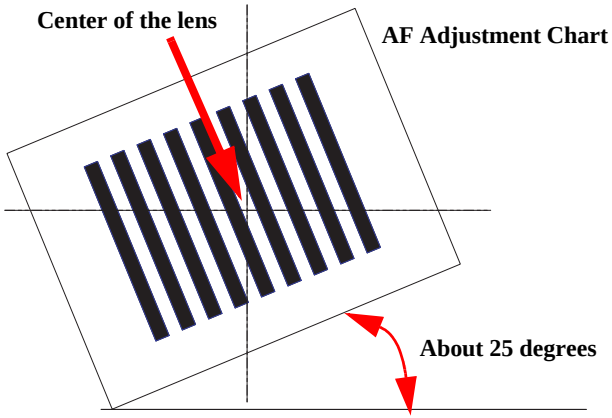
Figure 5-7. AF Compensation

☐ Preparation for Adjustment

- Stick the AF adjustment chart on a wall or board. The AF adjustment chart to be used is found at the end of this manual and can be obtained by outputting the attached file “sn_chart.dxf” onto an A2 size sheet.
- Place the camera in such a way that the center of the camera lens is in alignment with the center of the chart.
  The camera position is considered acceptable as long as the center of the chart is not dislocated as viewed on the LCD monitor of the camera.

CAUTION

- **If a printed chart is to be used, make sure that the pattern of the chart is not incomplete, soiled or blur.**
- **Slant the chart about 25 degrees so that the vertical stripes of the pattern are never in the upright position.**



- **Since the allowable ambient illumination at the chart surface is about 300 to 1000 luces, the general ambient illumination conditions are acceptable. However, take care that too intensive light does not hit the chart.**

☐ Adjustment Procedure

1. Open the lens cover of the camera.
2. Connect the AC adapter to the camera.
3. Insert into the camera the CF card in which the AF adjustment program has been installed.
4. Place the camera at a position where the distance from the chart to the lens surface with the lens on the WIDE side is 70 cm.
5. Hold down the F Button and Shutter Button together and press the Playback Button.
6. Upon completion of preparation, press the Shutter Button fully. Adjustment will be started
7. At completion of adjustment, “OK” is displayed on the monitor of the camera.
8. Press the Shutter Button fully to turn off power to the camera.
9. Remove the CF card from the camera.
10. Disconnect the AC adapter from the camera.

CAUTION

Do not move the camera during adjustment.

5.3.7 USB ID Writing

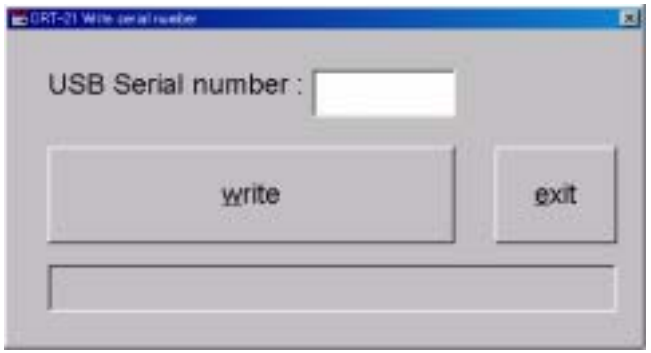
In this adjustment, the USB ID is written in flash memory on the Main Circuit Board. When the Main Circuit Board has been replaced with a new one, the camera can not use the USB ID which is stored on the old circuit board. Therefore, make this adjustment to register a new USB ID on the new circuit board.

CAUTION

If the display shows "A camera number can't be inputted" during USB ID writing, it signifies that the USB ID is not written successfully. In such a case, follow the USB ID writing procedure again.

☐ Adjustment Procedure

1. Connect the camera to PC by the serial cable to the camera via RS-232C interface. (See "LCD (Brightness) Adjustment" on page 65)z
2. Turn on power to the PC and run the adjustment program (CRT21sp.exe).
3. Insert into the camera the CF card in which the USB ID writing program has been installed.
4. Hold down the F Button and Shutter Button together and press the Playback Button. Then power to the camera will turn on and the viewfinder LED will blink.
5. The window as shown below will appear. Then enter the 6-digit serial number.



6. Upon completion of input, press the "W" key on the keyboard of the PC ("write" button), and the PC and the monitor of the camera will display "OK".
7. Pressing the Shutter Button fully will turn off power to the camera to complete the adjustment.
8. Remove the CF card from the camera.
9. Disconnect the AC adapter and the communication cable from the camera.
10. Pressing the "e" key ("exit" button) will complete the adjustment program.

CHAPTER

6

MAINTENANCE

6.1 Overview

PhotoPC 2100Z requires no specific maintenance (lubrication / adhesion / cleaning). Camera should be cleaned according to its necessity, however, such as for dust incoming at the repairing service or fingerprint. The following table lists the check items before sending the camera back to users

6.1.1 Check Items before Shipment

Check the camera according to Table 6-2. If you find any dust or dirt on the camera, clean it referring to Chapter 4 “Disassembly and Assembly”. Clean the camera of dust and fingerprints by the method as described in Table 6-1 below.

Table 6-1. Places to be Cleaned and Cleaning Method

Places to be Cleaned	Cleaning Method
Exterior casing	• Wipe with a soft dry cloth. • If the dirt is heavy, first remove it with a soft cloth which has been dipped in a neutral detergent diluted with water and then squeezed up. After that, wipe with a soft dry cloth.
Lens	Blow the dust off by a blower or an air blush. Then gently wipe with a soft cloth.
Monitor LCD	Gently wipe with a soft dry cloth.
Flash window	Gently wipe with a soft dry cloth.
Self-timer window	Gently wipe with a soft dry cloth.

CAUTION

- **Pay special attention to dirt or scratches on the flash window, which can cause the flash window to be deformed.**
- **Remember that dirt or scratches on the flash window can also cause abnormal flash firing.**

Table 6-2. Check Items before Shipment

No.	Check Item	OK/NG
1	What is firmware version? Ver._____	☐ OK ☐ NG
2	Are the inside and outside of the lens viewer free from fingerprints or any other soiling.	☐ OK ☐ NG
3	Are the inside and outside of the flash window free from dust or foreign matter adhesion?	☐ OK ☐ NG
4	Is the lens surface free from fingerprints or dust?	☐ OK ☐ NG
5	Are the inside and outside of the Monitor LCD window free from fingerprints or dust?	☐ OK ☐ NG
6	Has the Battery Cover been installed in the Rear Cover properly and does it open and close normally, with a click felt?	☐ OK ☐ NG
7	Does the camera ensure normal insertion of the CompactFlash card?	☐ OK ☐ NG
8	Has the Connector Cover been installed in the Rear Cover properly and does it open and close normally, with a click felt?	☐ OK ☐ NG
9	Do all the switch buttons operate properly?	☐ OK ☐ NG
10	Is the appearance clean?	☐ OK ☐ NG
11	Have all the accessories installed in position or packed together for delivery, without forgetting any of them?	☐ OK ☐ NG

CHAPTER

7

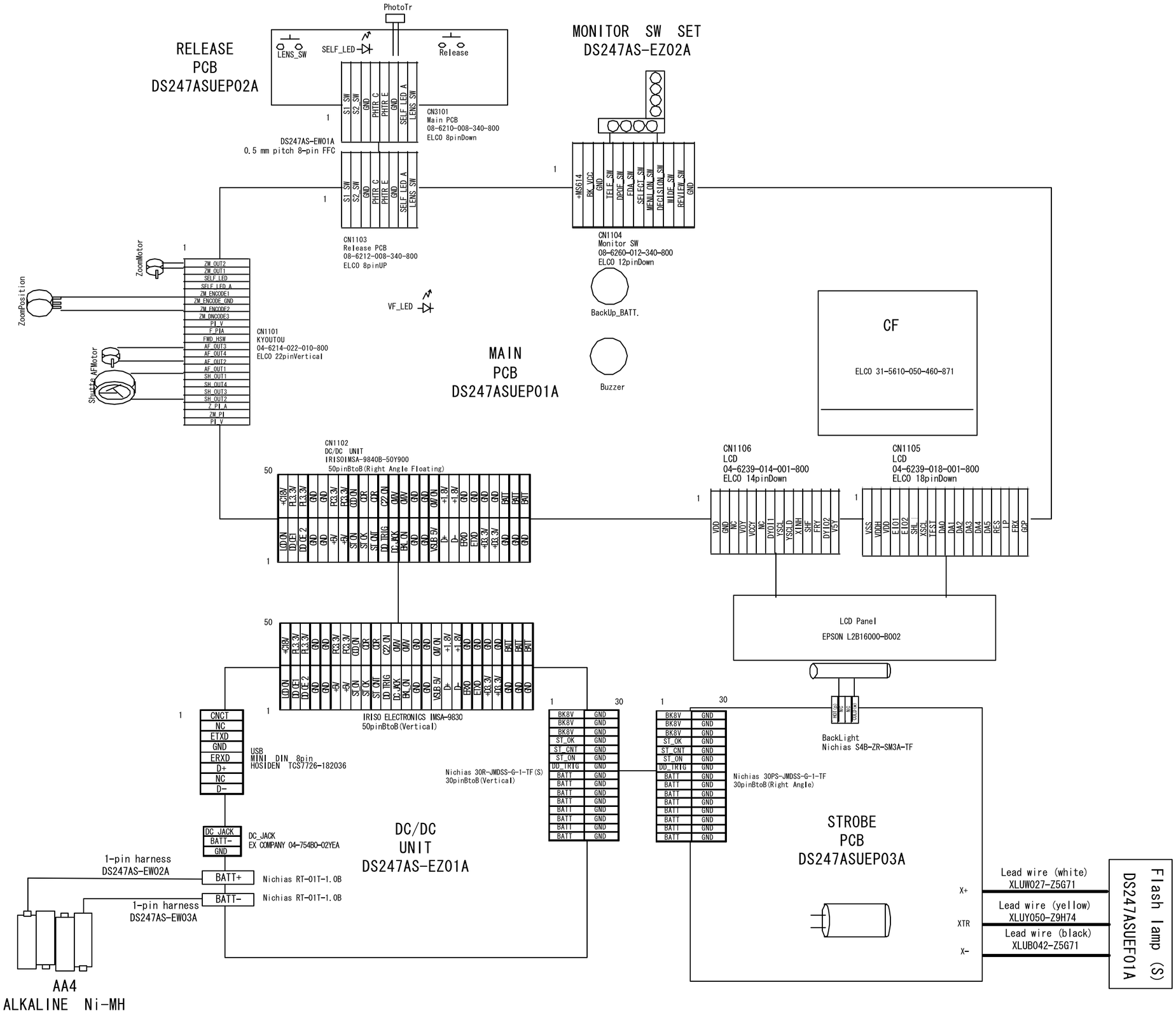
APPENDIX

7.1 Circuit Board Connection Diagram

The next page shows the circuit board connection diagram.

Circuit Boards Connection Diagram

Ver 1.0
'01/07/30



7.2 Circuit Board Component Layout

This section shows the circuit board component layouts for PhotoPC 2100Z.

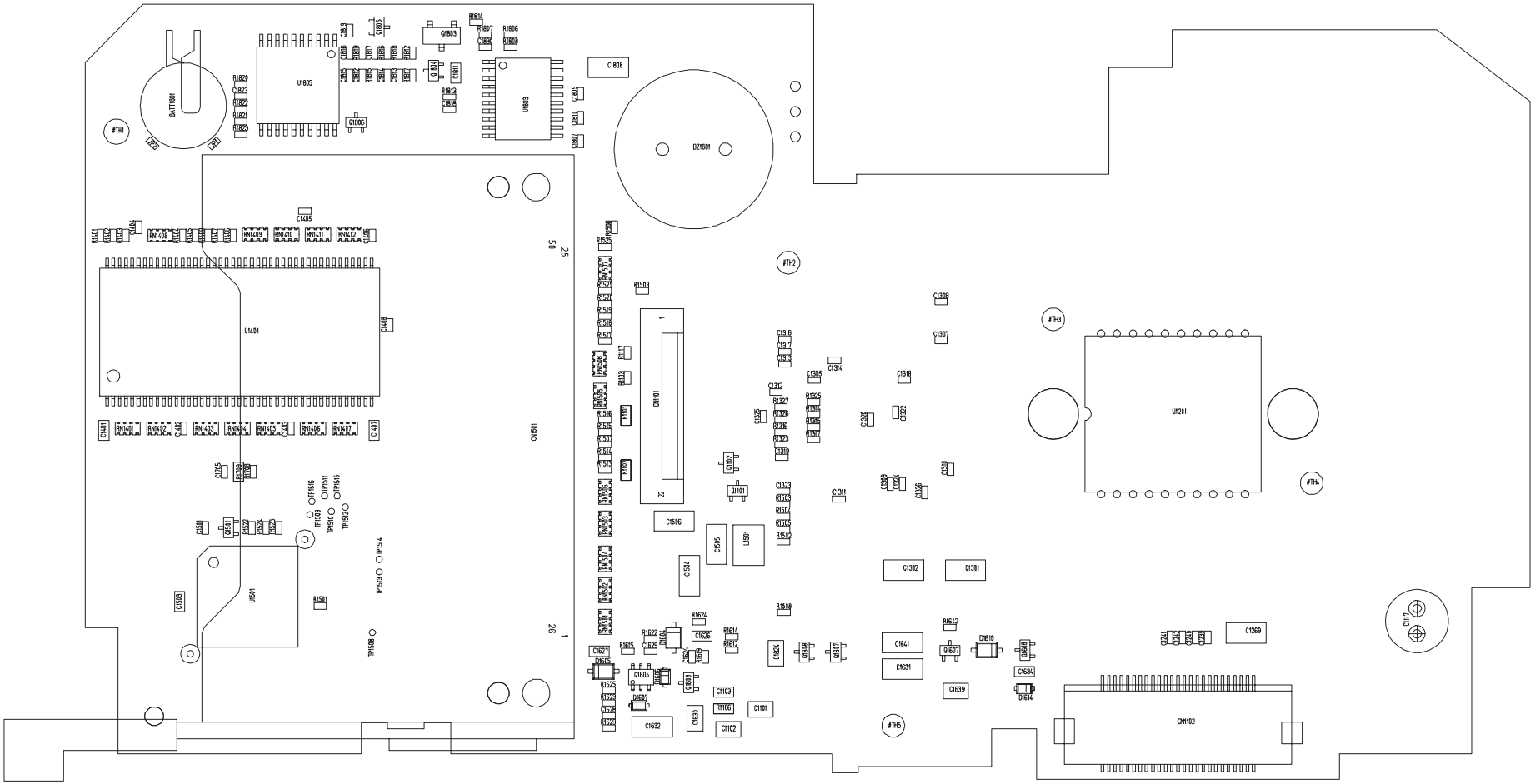


Figure 7-1. Main Circuit Board 1

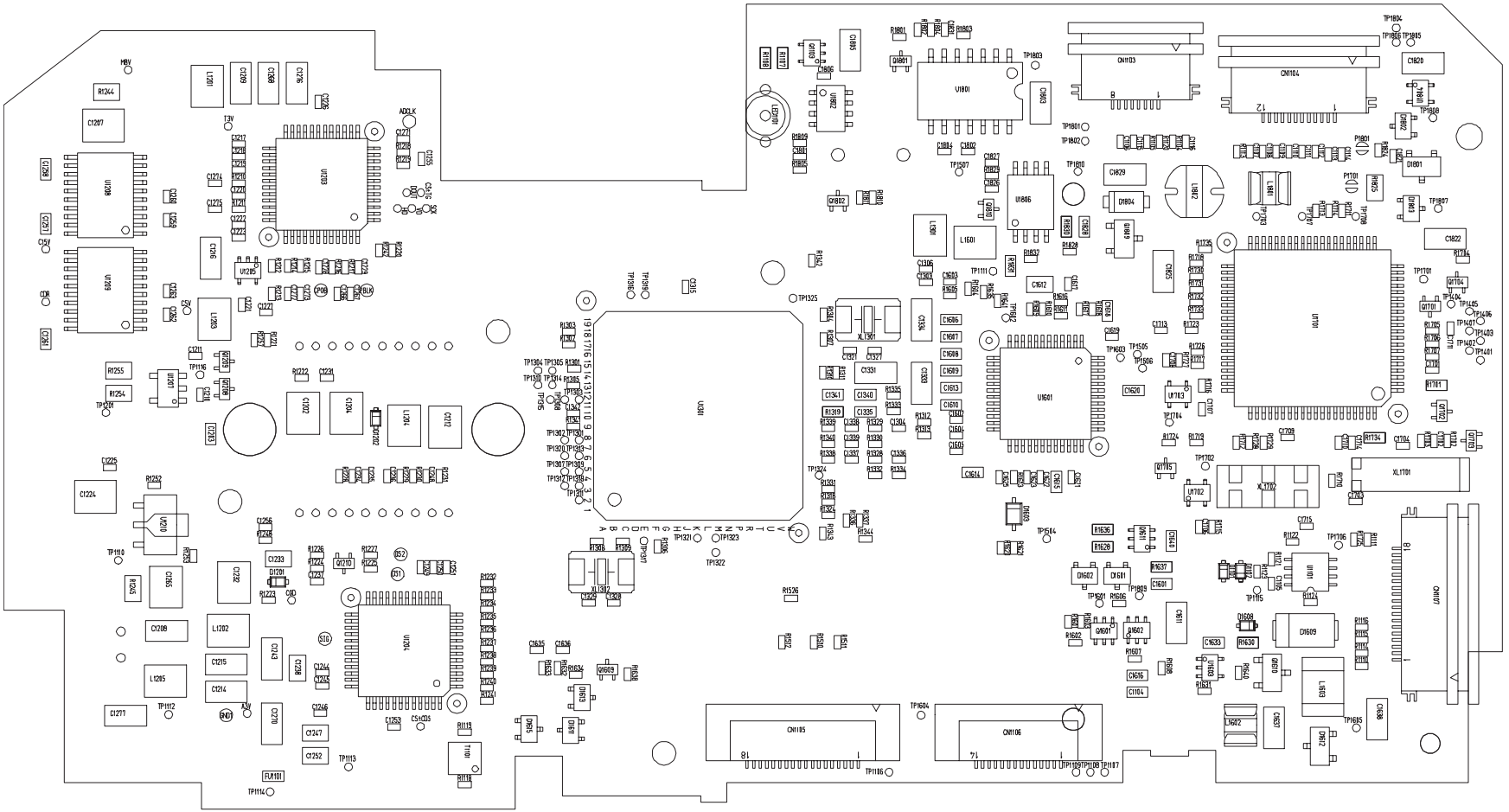


Figure 7-2. Main Circuit Board 2

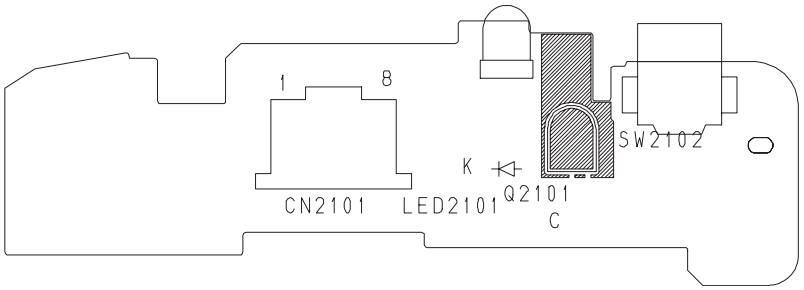


Figure 7-3. Release Circuit Board (Components Side)

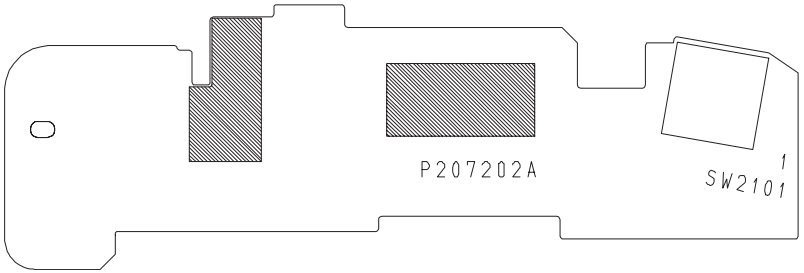


Figure 7-4. Release Circuit Board (Solder Side)

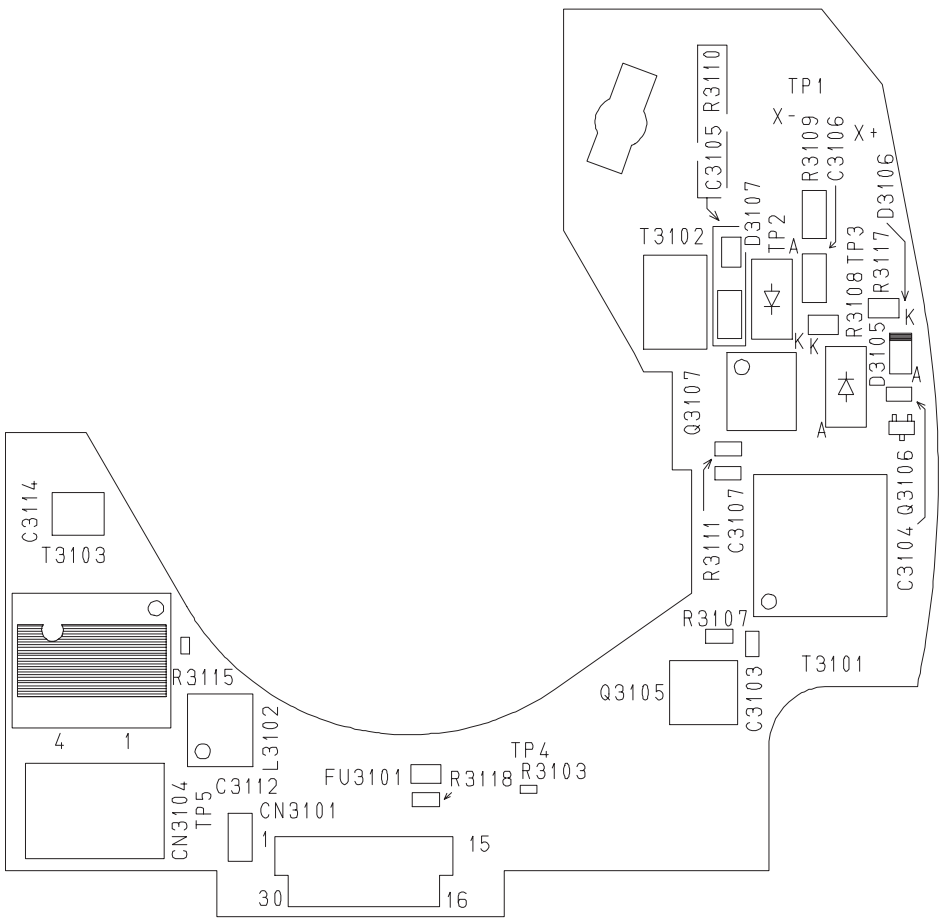


Figure 7-5. Flash Circuit Board 1

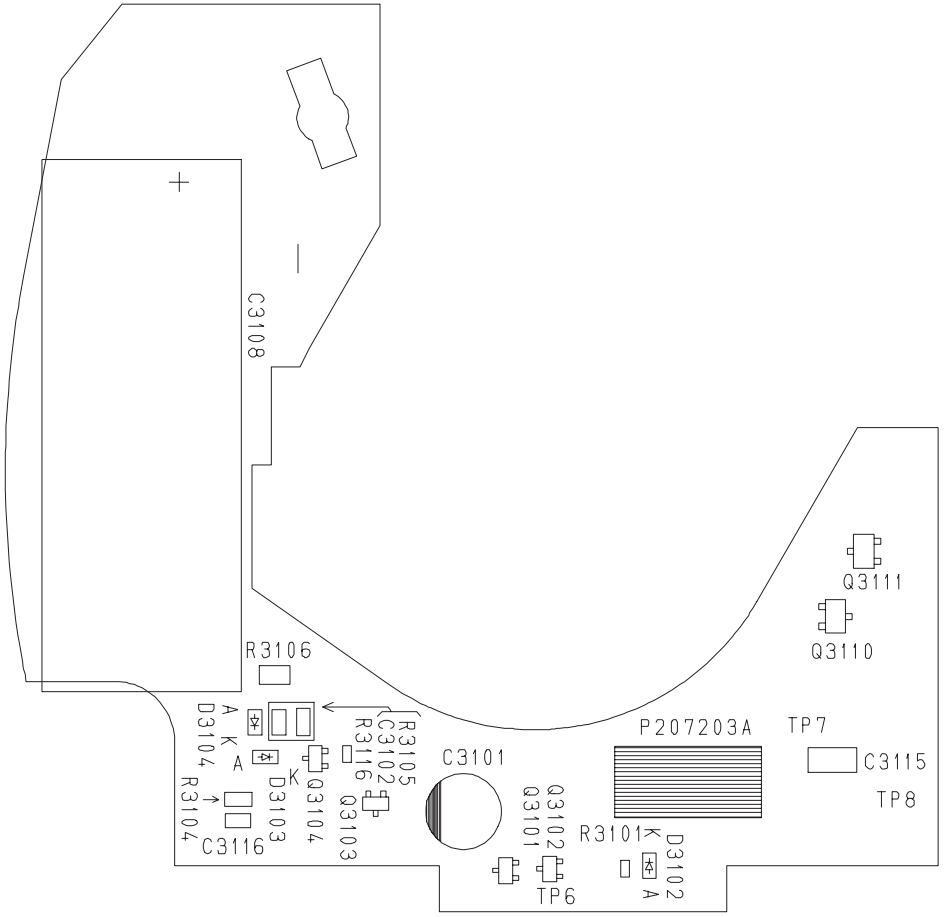
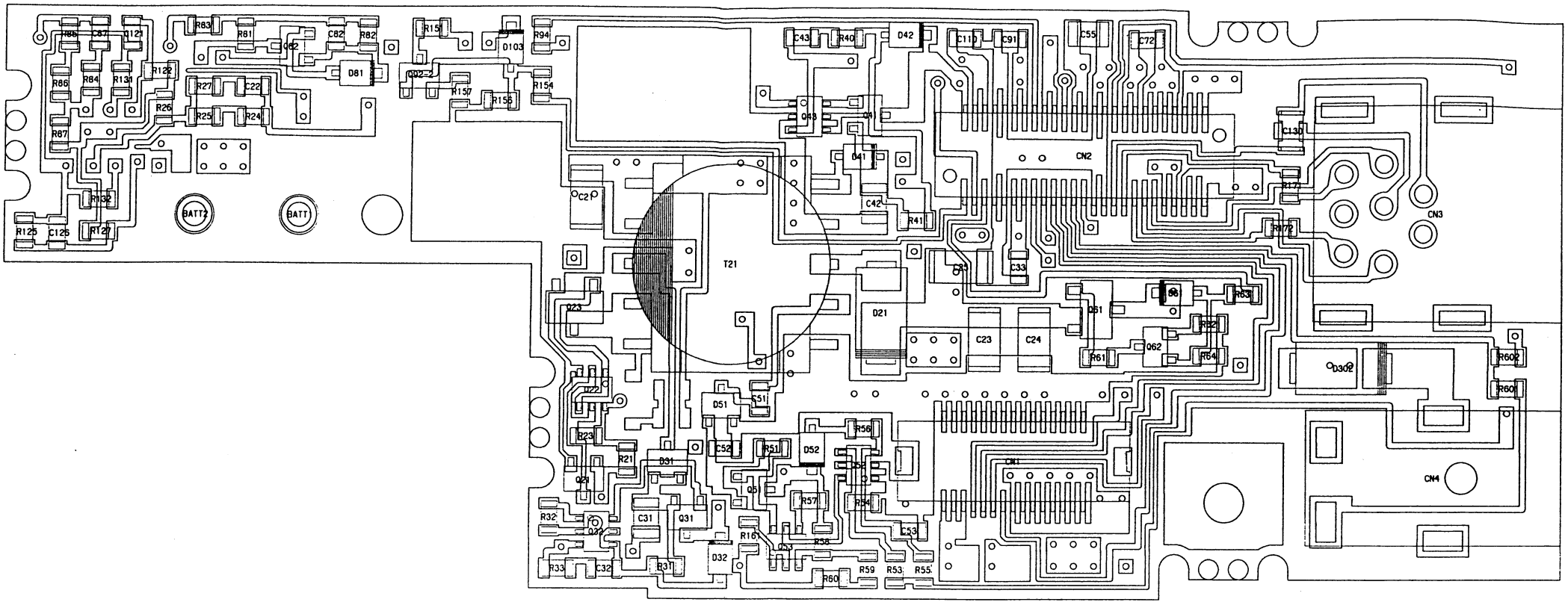
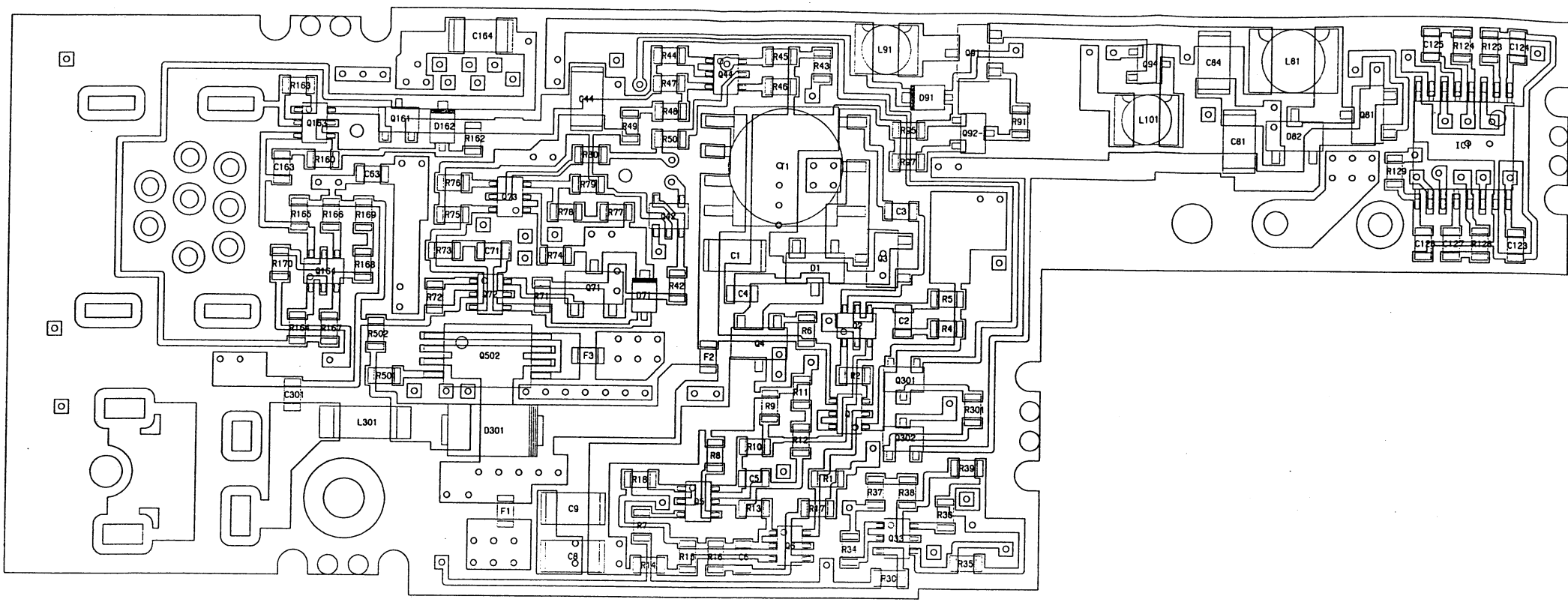


Figure 7-6. Flash Circuit Board 2



DS247AS-EZ01A
(MPD4K001)
Elements Locating Diagram (Back Side)

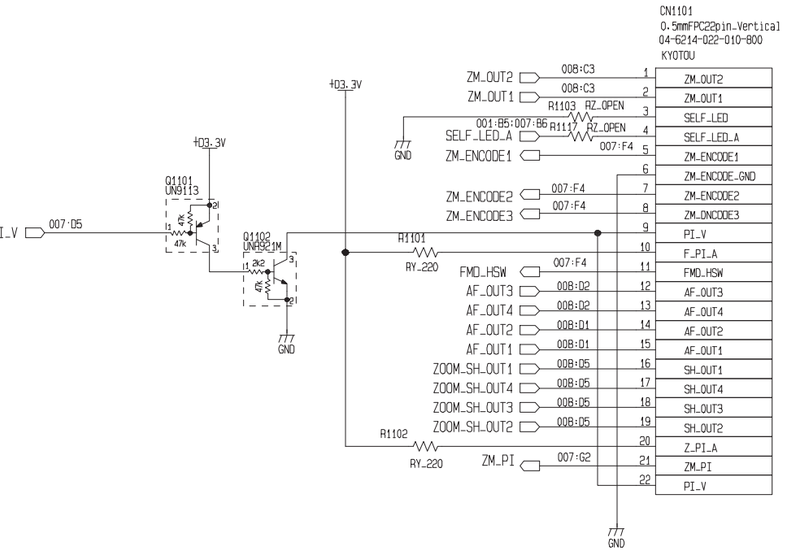


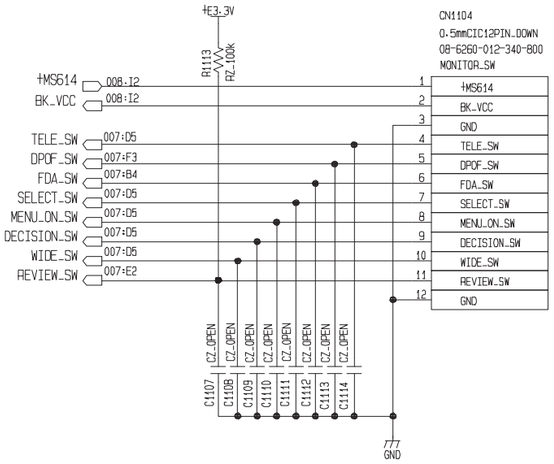
DS247AS-EZ01A
(MPD4K001)
Elements Locating Diagram (Front Side)

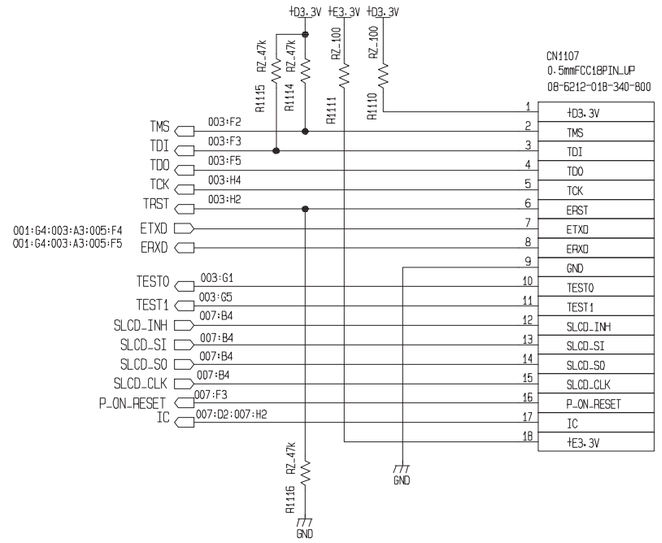
7.3 Circuit Diagrams

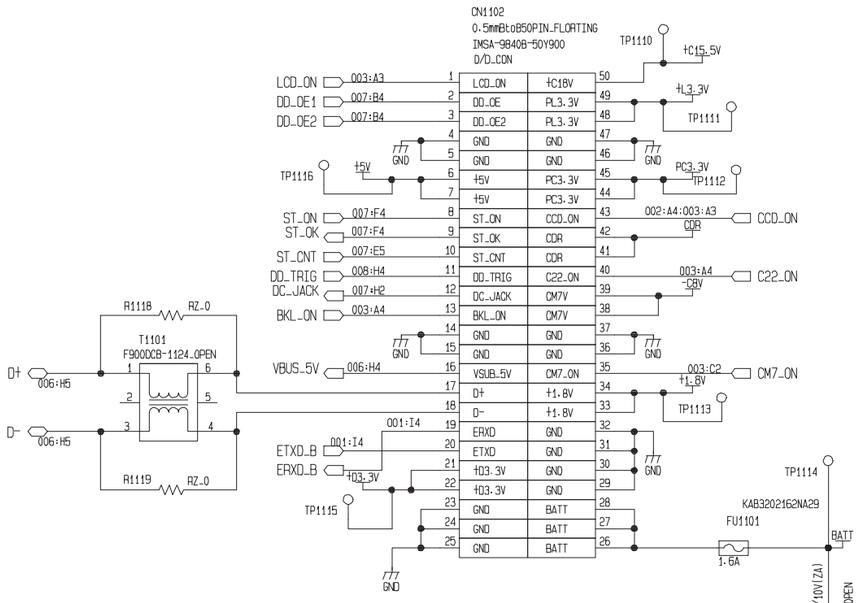
This section shows the following circuit diagrams for PhotoPC 3100Z.

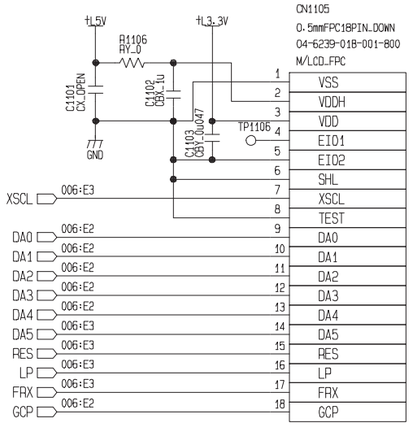
- ☐ Circuit Diagram of Main Circuit Board 1-8
- ☐ Circuit Diagram of Release Circuit Board
- ☐ Circuit Diagram of Flash Circuit Board
- ☐ Circuit Diagram of Power Supply Circuit Board

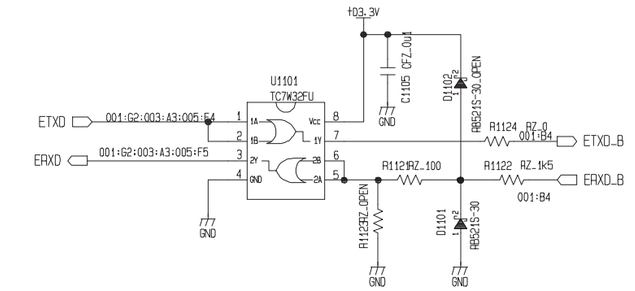


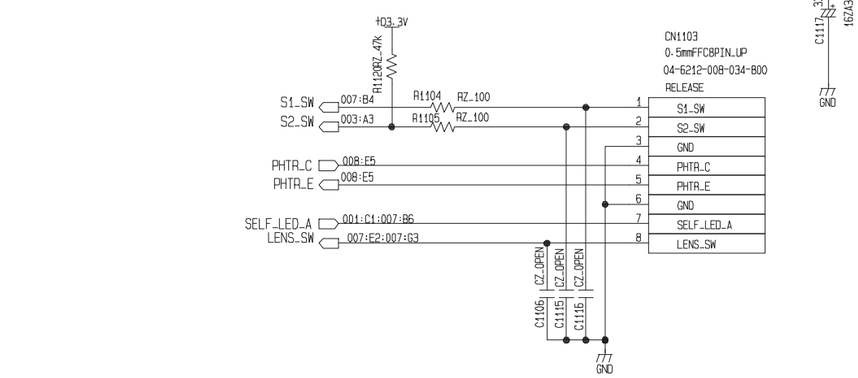


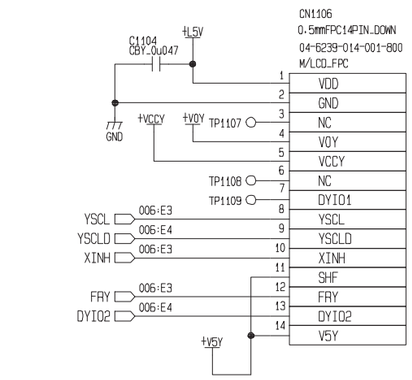


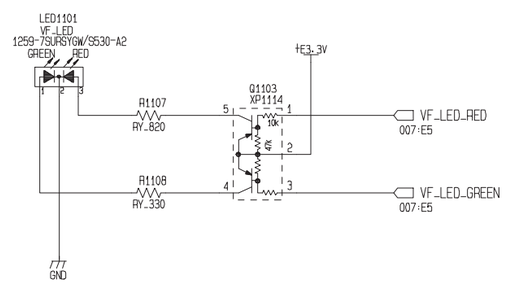












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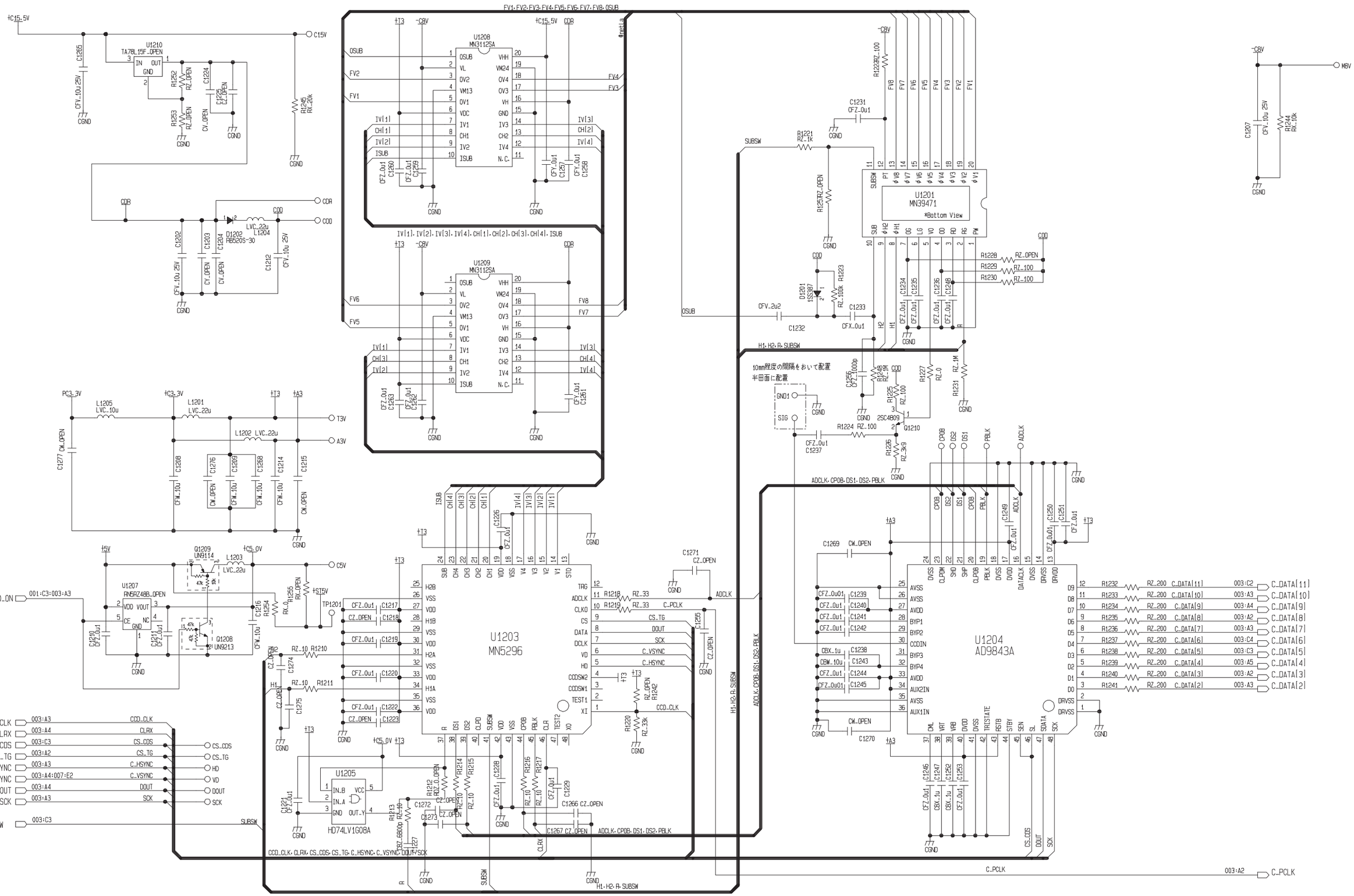
MAIN(CONNECT)


FV1,FV2,FV3,FV4,FV5,FV6,FV7,FV8,OSUB
+C15.5V
C15V
U1210
TA78L15F_OPEN
C1265
CFV_10u_25V
R1252 RZ_OPEN
R1253 RZ_OPEN
C1224
C1225 CZ_OPEN
CV_OPEN
R1245 RX_20k
CGND
CDR
COD
D1202 RB520S-30
LVC_22u L1204
C1202
C1203
C1204
CV_OPEN
C1212
CFV_10u_25V
U1208 MN3112SA
U1209 MN3112SA
+T3
-C8V
+C15.5V
IV[1],IV[2],IV[3],IV[4],CH[1],CH[2],CH[3],CH[4],ISUB
U1201 MN39471 *Bottom View
SUBSW
OSUB
H1,H2,R,SUBSW
10mm程度の間隔をおいて配置
半田面に配置
2SC4809 Q1210
C1231 CFZ_0u1
R1221 RZ_1K
R1222RZ_100
R1125RZ_OPEN
R1228 RZ_OPEN
R1229 RZ_100
R1230 RZ_100
D1201 1SS387
R1223 RZ_100K
C1232 CFV_2u2
C1233 CFX_0u1
C1234 C1235 C1236 C1248 CFZ_0u1
R1227 RZ_0
R1231 RZ_1M
C1255 CFZ_1000p
R1226 RZ_4K
R1225 RZ_100
R1224 RZ_100
C1237 CFZ_0u1
R1235 RZ_3K9
ADCLK,CPOB,DS1,DS2,PBLK
C1249 C1250 C1251
M8V
C1207 CFV_10u_25V
R1244 RX_10k
PC3.3V
+C3.3V
L1205 LVC_10u
L1201 LVC_22u
L1202 LVC_22u
T3V
A3V
C1277 CW_OPEN
C1208 C1276 C1209 C1268 C1214 C1215
CFW_10u
CW_OPEN
+5V
+C5.0V
C5V
Q1209 UN9114
L1203 LVC_22u
U1207 AN6RZ48B_OPEN
001:C3:003:A3
CCD_ON
C1210 CFZ_0u1
C1211 CFZ_0u1
C1216 CFW_10u
R1254 RX_0
R1255 RX_OPEN
+ST5V
TP1201
Q1208 UN9213
U1203 MN5296
C1217 C1218 C1219 C1220 C1222 C1223 CFZ_0u1
CZ_OPEN
RZ_10 R1210
RZ_10 R1211
C1274 C1275
C1271 CZ_OPEN
C1255 CZ_OPEN
R1218 RZ_33
R1219 RZ_33
C_PCLK
ADCLK
CS_TG
DOUT
SCK
C_VSYNC
C_HSYNC
CCD_CLK
R1242 RZ_OPEN
R1220 RZ_33K
U1205 HD74LV1G08A
R1212 RZ_0_OPEN
R1213 RZ_10
C1272 C1273 CZ_OPEN
C1266 CZ_OPEN
C1267 CZ_OPEN
C1228 C1229 CFZ_0u1
R1214 R1215 R1216 R1217 RZ_10
CCD_CLK,CLRX,CS_CDS,CS_TG,C_HSYNC,C_VSYNC,DOUT,SCK
H1,H2,R,SUBSW
U1204 AD9843A
C1269 CW_OPEN
C1270 CW_OPEN
C1239 C1240 C1241 C1242 C1243 C1244 C1245 CFZ_0u1
CBX_1u
CBW_10u
C1246 C1247 C1252 C1253 CFZ_0u1
CBX_1u
R1232 R1233 R1234 R1235 R1236 R1237 R1238 R1239 R1240 R1241 RZ_200
C_DATA[11] C_DATA[10] C_DATA[9] C_DATA[8] C_DATA[7] C_DATA[6] C_DATA[5] C_DATA[4] C_DATA[3] C_DATA[2]
003:C2 003:A3 003:A4 003:A2 003:A3 003:C4 003:C3 003:A5 003:A2 003:A3
C_PCLK 003:A2
CCD_CLK 003:A3
CLRX 003:A4
CS_CDS 003:C3
CS_TG 003:A2
C_HSYNC 003:A3
C_VSYNC 003:A4:007:E2
DOUT 003:A4
SCK 003:A3
SUBSW 003:C3

U1301
TMS320DSC21

U1301の+A3.3V電源端子近くにOu1Fのパスコンを付けること。

U1301の+D3.3V電源端子近くにOu1Fのパスコンを付けること。

この回路はU1301の近くに配置し、
短く太い配線にすること

この回路はU1301の近くに配置し、
短く太い配線にすること

この回路はU1301の近くに配置し、
短く太い配線にすること

この回路はU1301の近くに配置し、
短く太い配線にすること

この回路はU1301の近くに配置し、
短く太い配線にすること

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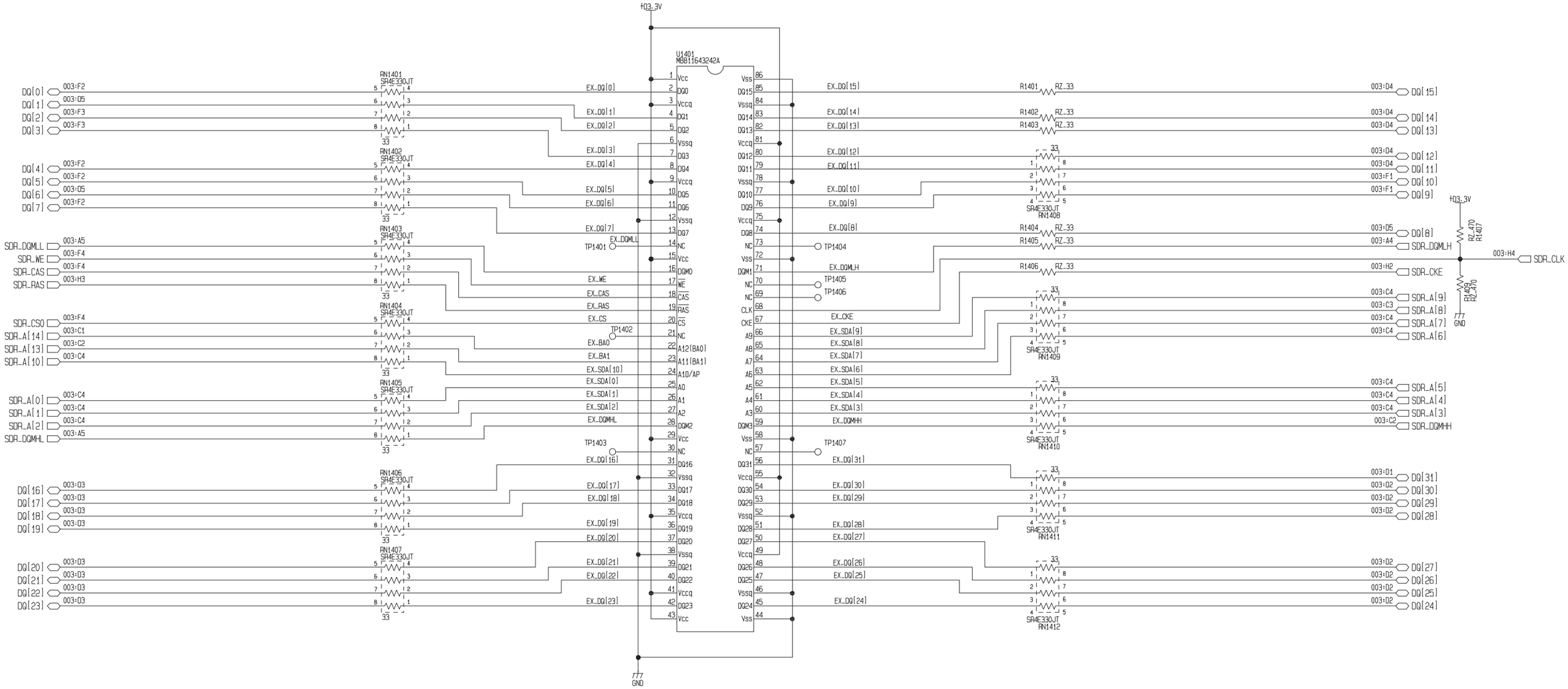
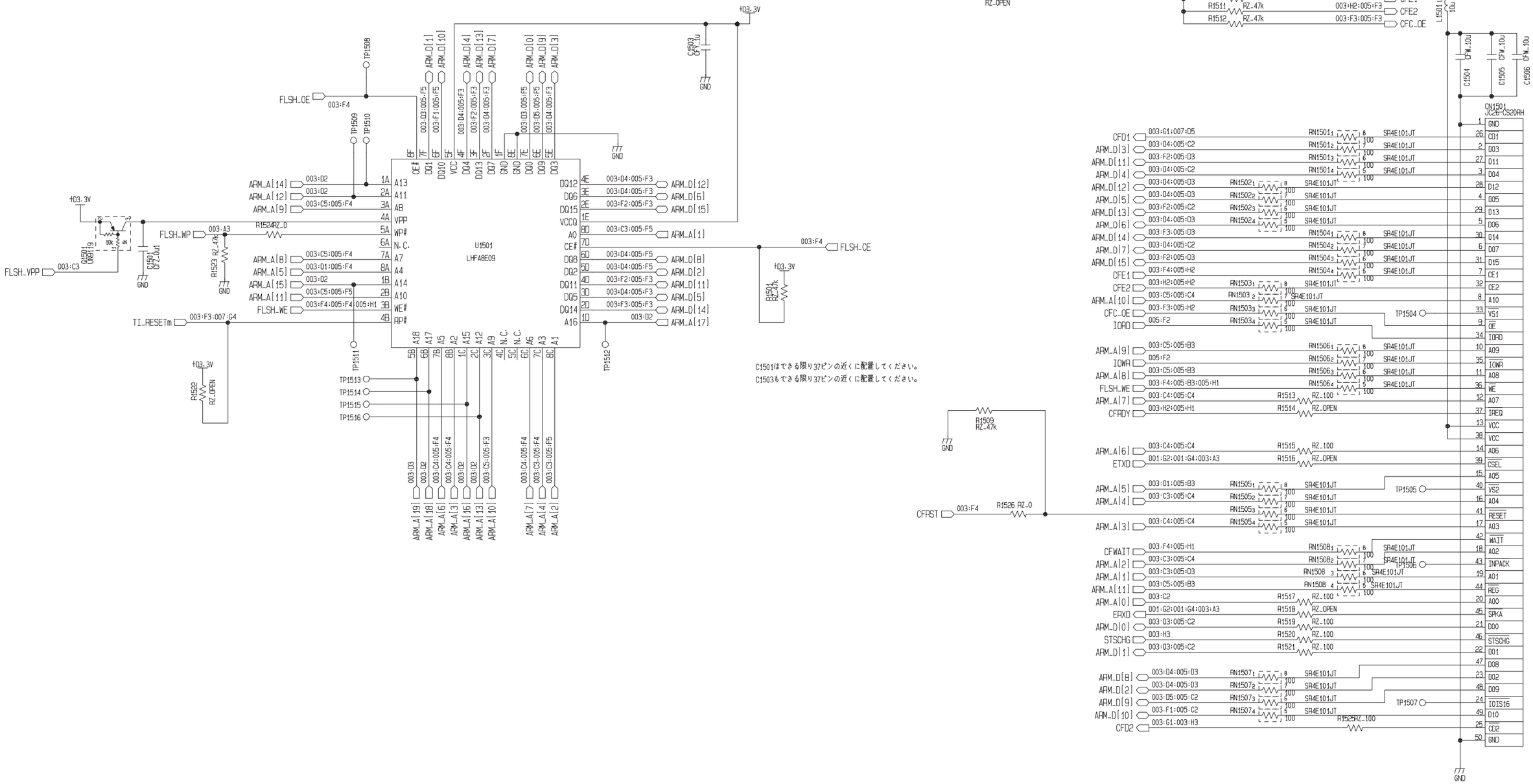
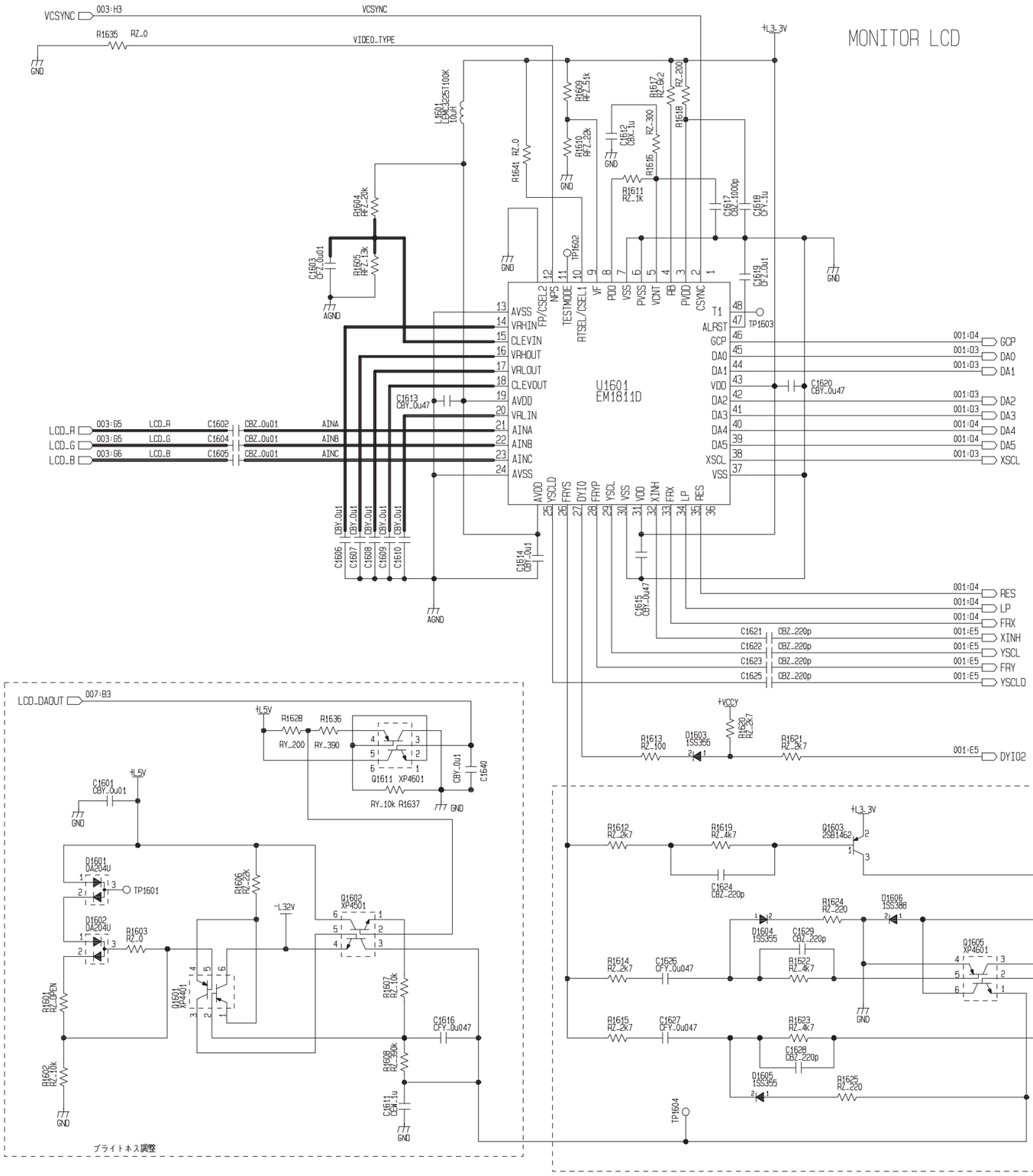
MAIN(TI)

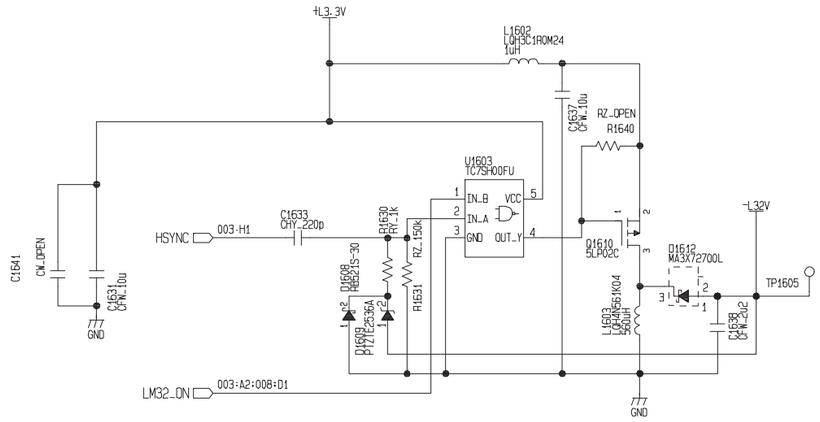


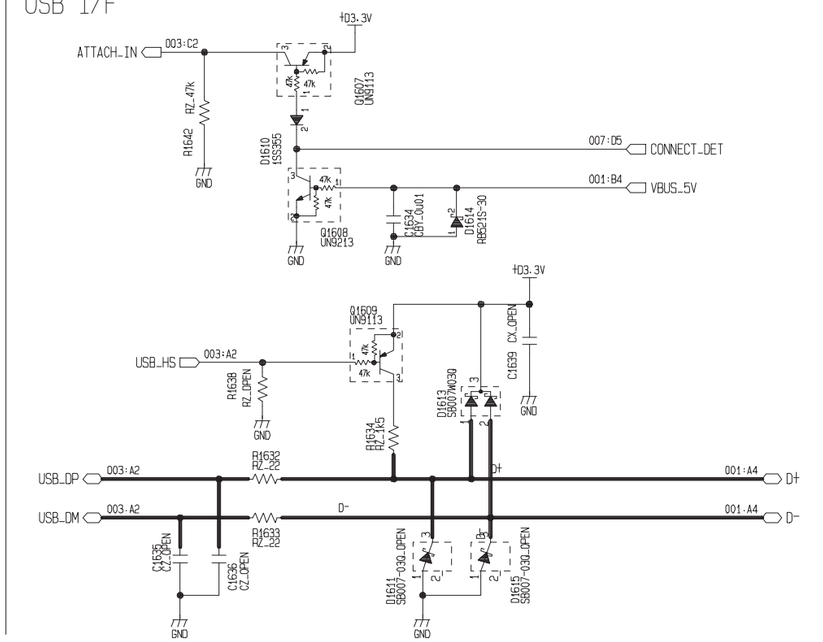
ICの電源端子（Vcc，Vccq）とGND間にパスコンを付ける


U1501
LHFABE09
TP1508
FLSH_OE
TP1509
TP1510
TP1511
TP1512
TP1513
TP1514
TP1515
TP1516
TI_RESETm
FLSH_WP
FLSH_VPP
FLSH_CE
FLSH_WE
C1503 0.1u
C1501 0.01u
R1524 RZ_0
R1523 RZ_47k
R1522 RZ_OPEN
R1501 RZ_47k
Q1501 DTB113Z
C1502 0.01u
C1500はできる限り37ピンの近くに配置してください。
C1503もできる限り37ピンの近くに配置してください。
R1502 RZ_47k
R1503 RZ_47k
R1504 RZ_OPEN
R1505 RZ_OPEN
CFIORD
CFIOWR
IORD
IOWR
R1506 RZ_47k
R1507 RZ_47k
R1508 RZ_47k
R1509 RZ_47k
R1510 RZ_47k
R1511 RZ_47k
R1512 RZ_47k
CFWAIT
CFRDY
FLSH_WE
CFE1
CFE2
CFC_OE
L1501 LVC_10u
100
C1504 CFW_10u
C1505 CFW_10u
C1506 CFW_10u
CN1501 JC26-CS20RH
R1513 RZ_100
R1514 RZ_OPEN
R1515 RZ_100
R1516 RZ_OPEN
R1517 RZ_100
R1518 RZ_OPEN
R1519 RZ_100
R1520 RZ_100
R1521 RZ_100
R1525 RZ_100
R1526 RZ_0
CFRST
TP1504
TP1505
TP1506
TP1507
RN1501 SR4E101JT
RN1502 SR4E101JT
RN1503 SR4E101JT
RN1504 SR4E101JT
RN1505 SR4E101JT
RN1506 SR4E101JT
RN1507 SR4E101JT
RN1508 SR4E101JT
GND
+D3.3V

MONITOR LCD


VCSYNC
003:H3
VIDEO_TYPE
+L3.3V
U1601
EM1811D
LCD_R
LCD_G
LCD_B
003:G5
003:G6
AINA
AINB
AINC
001:D4
001:D3
001:E5
GCP
DA0
DA1
DA2
DA3
DA4
DA5
XSCL
RES
LP
FRX
XINH
YSCL
FRY
YSCLD
DYIO2
+VCCY
+L5V
+L32V
AGND
GND
TP1602
TP1603
TP1604
TP1601
LCD_DAOUT
007:B3
ブライトネス調整
揺き揺り回路


+L3.3V
HSYNC
003:H1
LM32_ON
003:A2:D8:D1
U1603
TC7SH00FU
Q1610
5LP02C
Q1612
MA3X72700L
D1608
RB521S-30
D1609
PJZT2E36A
L1602
LQH5C1R0M24
1uH
L1603
LQH4N561K04
560uH
TP1605
RZ_OPEN
RZ_150k
GND


USB I/F
+D3.3V
ATTACH_IN
003:C2
007:D5
CONNECT_DET
001:B4
VBUS_5V
USB_HS
003:A2
USB_DP
USB_DM
001:A4
D+
D-
Q1607
UN9113
Q1608
UN9213
Q1609
UN9113
D1610
1SS355
D1614
RB521S-30
D1613
S5007W030
D1611
S5007-030L-OPEN
D1612
S5007-030L-OPEN
GND

U1701

μPD780055GK-A11-9EU

U1701のパスコン

DS247AS-E001A

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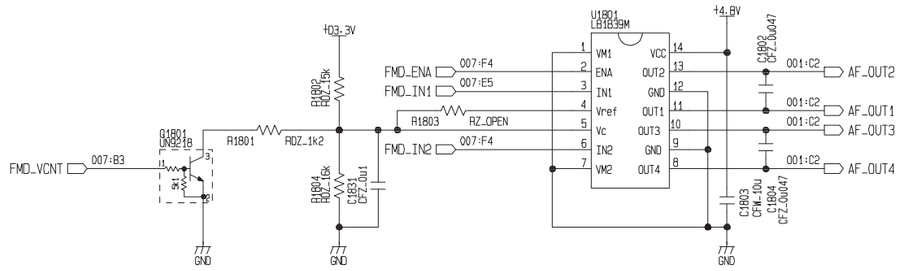
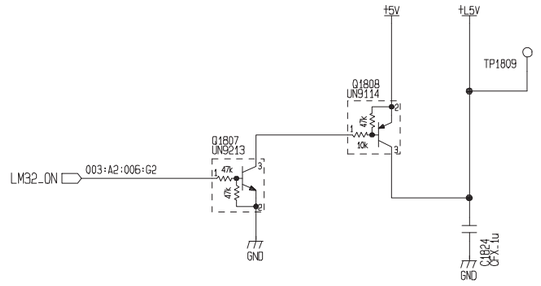
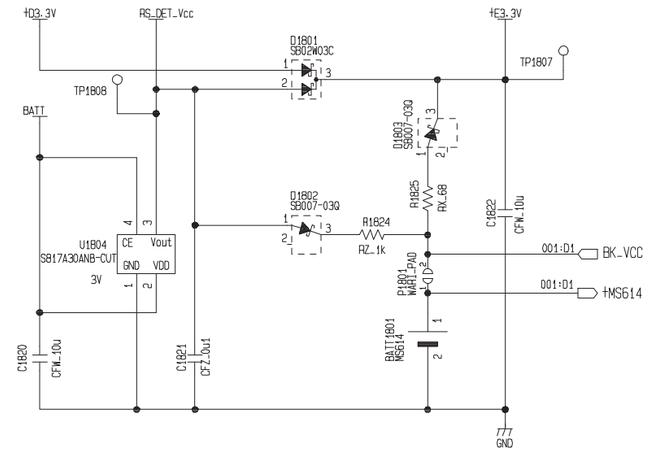
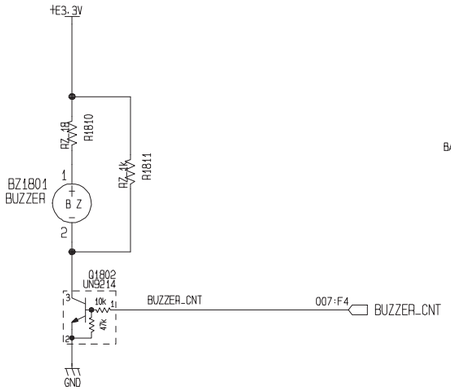
MAIN(8BIT)

FOCUS DRIVE

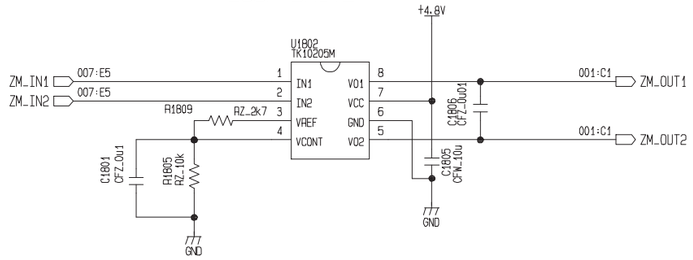


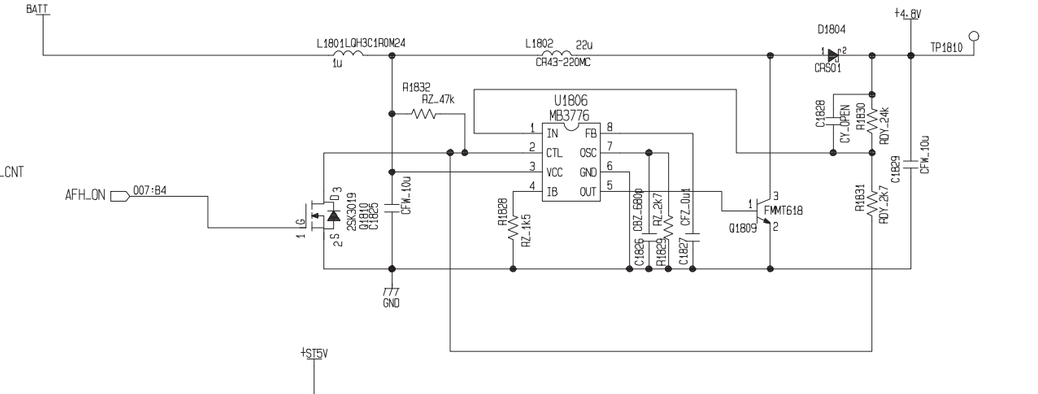




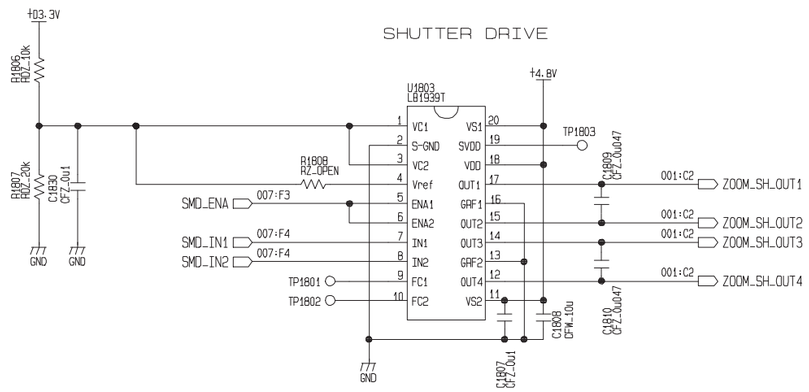


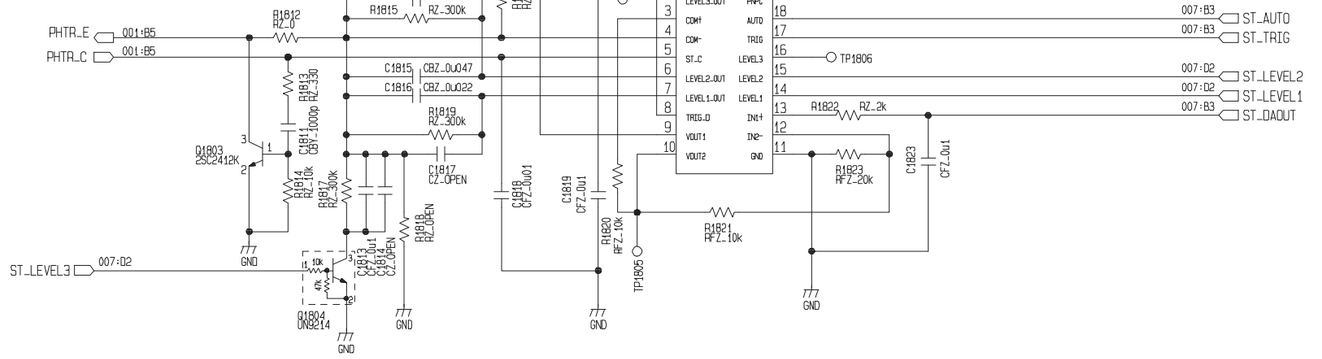
ZOOM DRIVE





SHUTTER DRIVE





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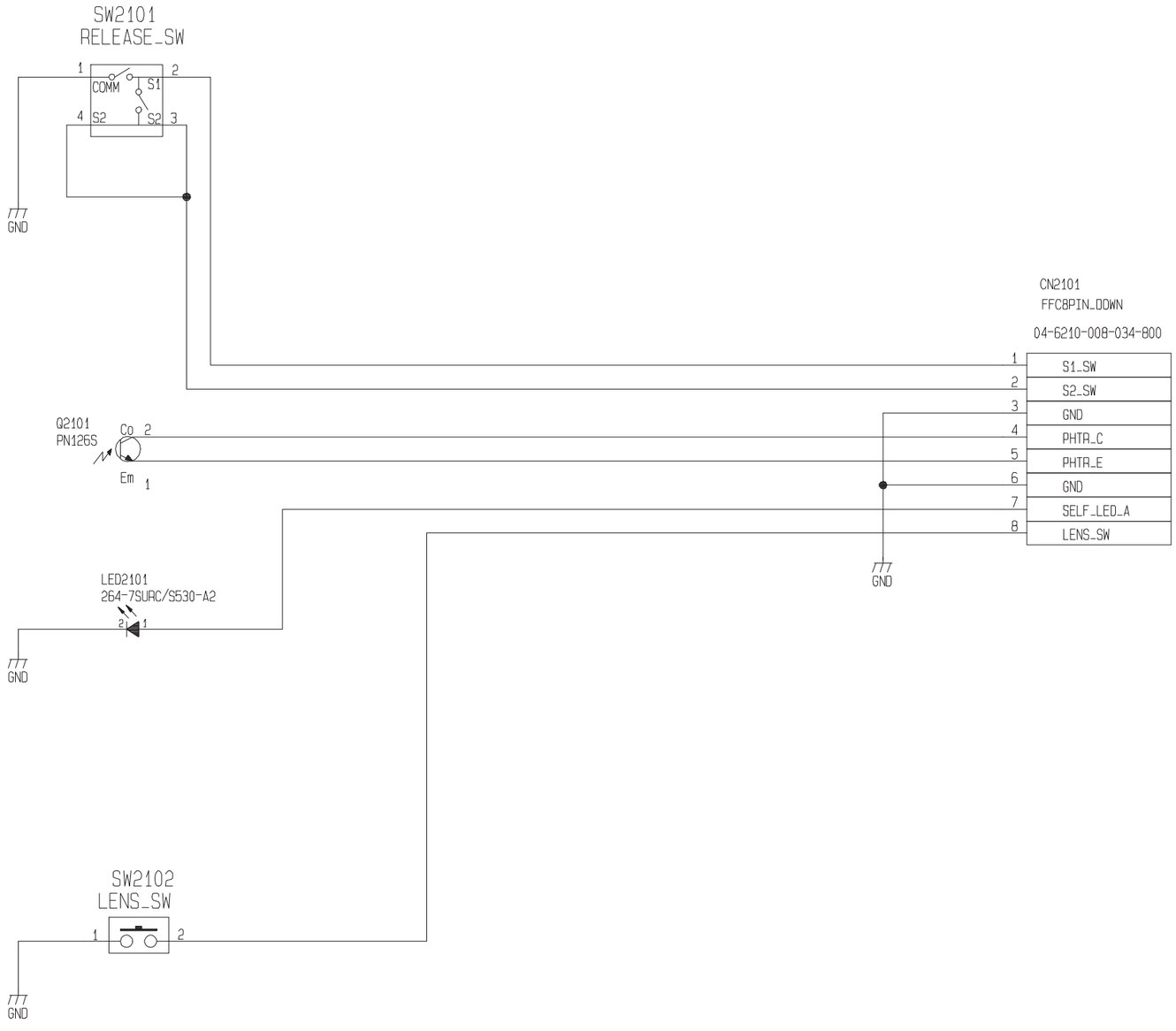
MAIN(MOT_DRIV)

8 8



DS247AS-E002A

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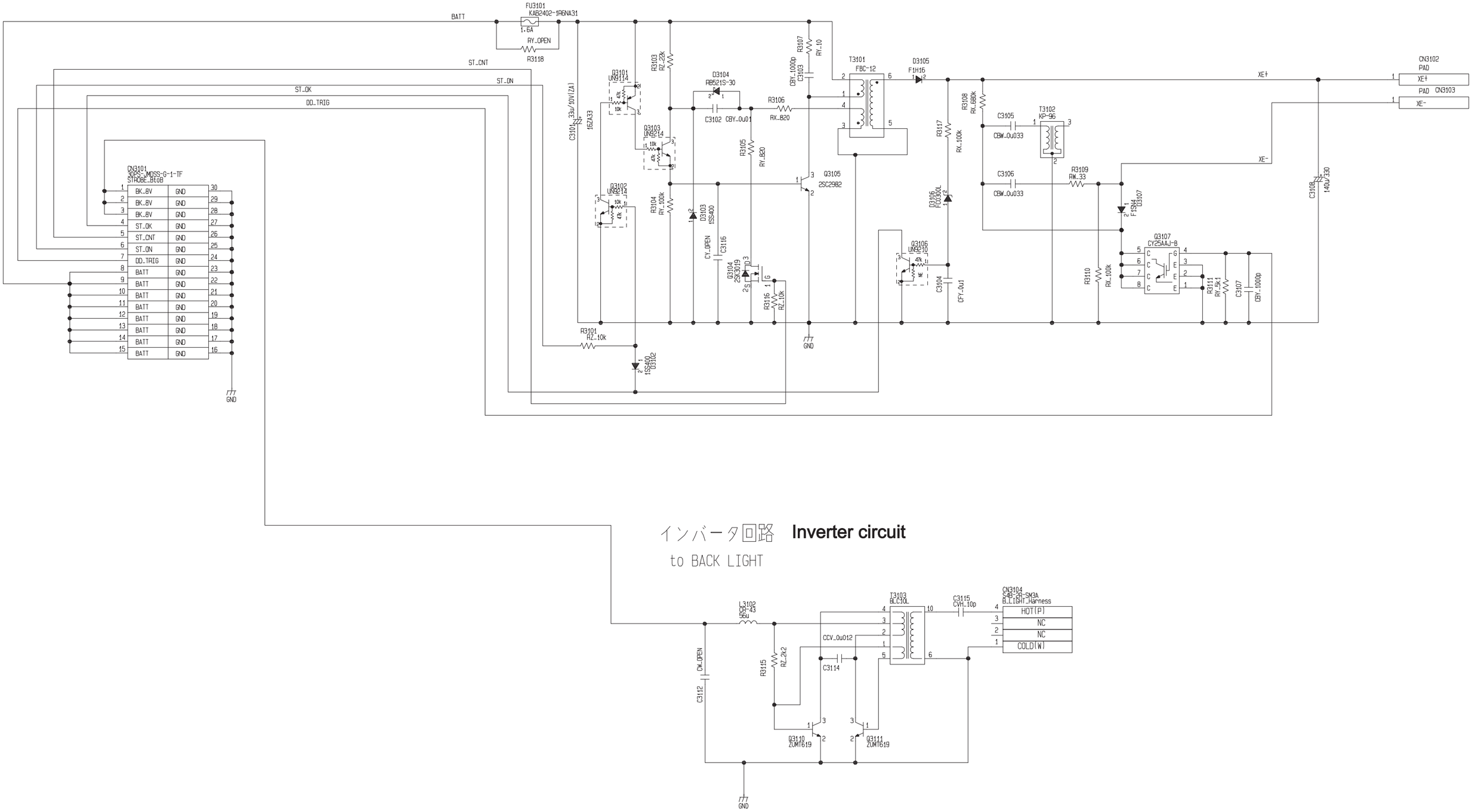
RELEASE PCB

1 1



インバータ回路　Inverter circuit

to BACK LIGHT

DS247AS-E003A

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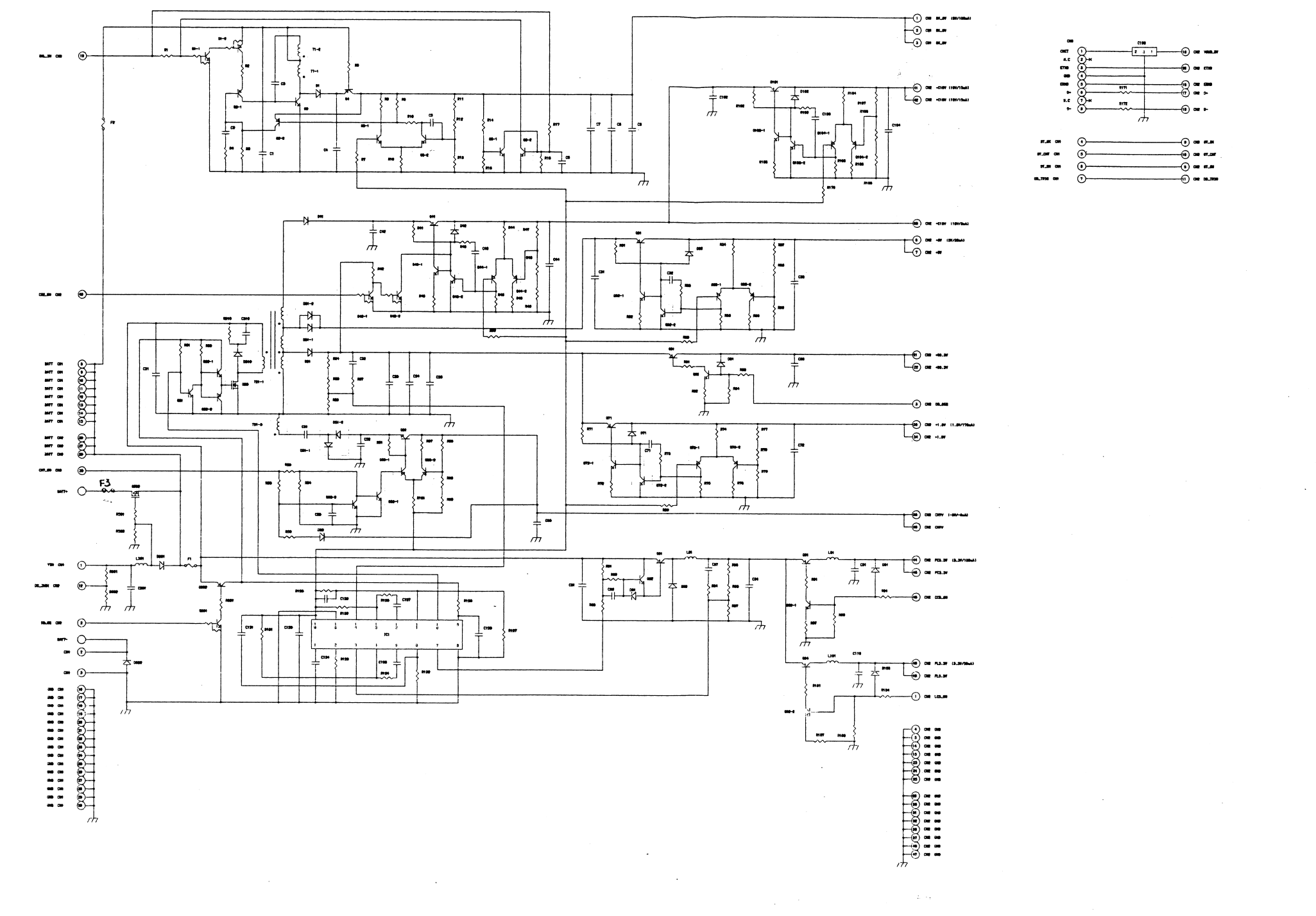
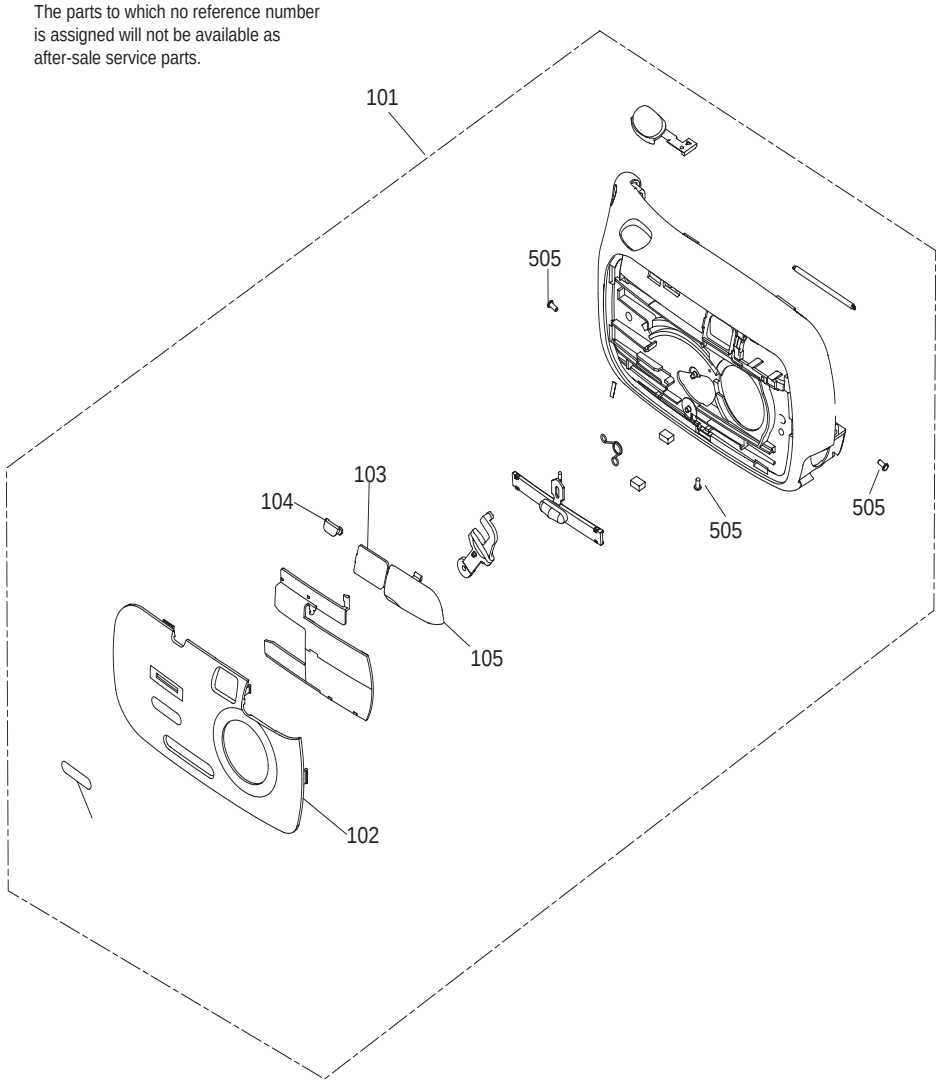
STROBE PCB

1 1



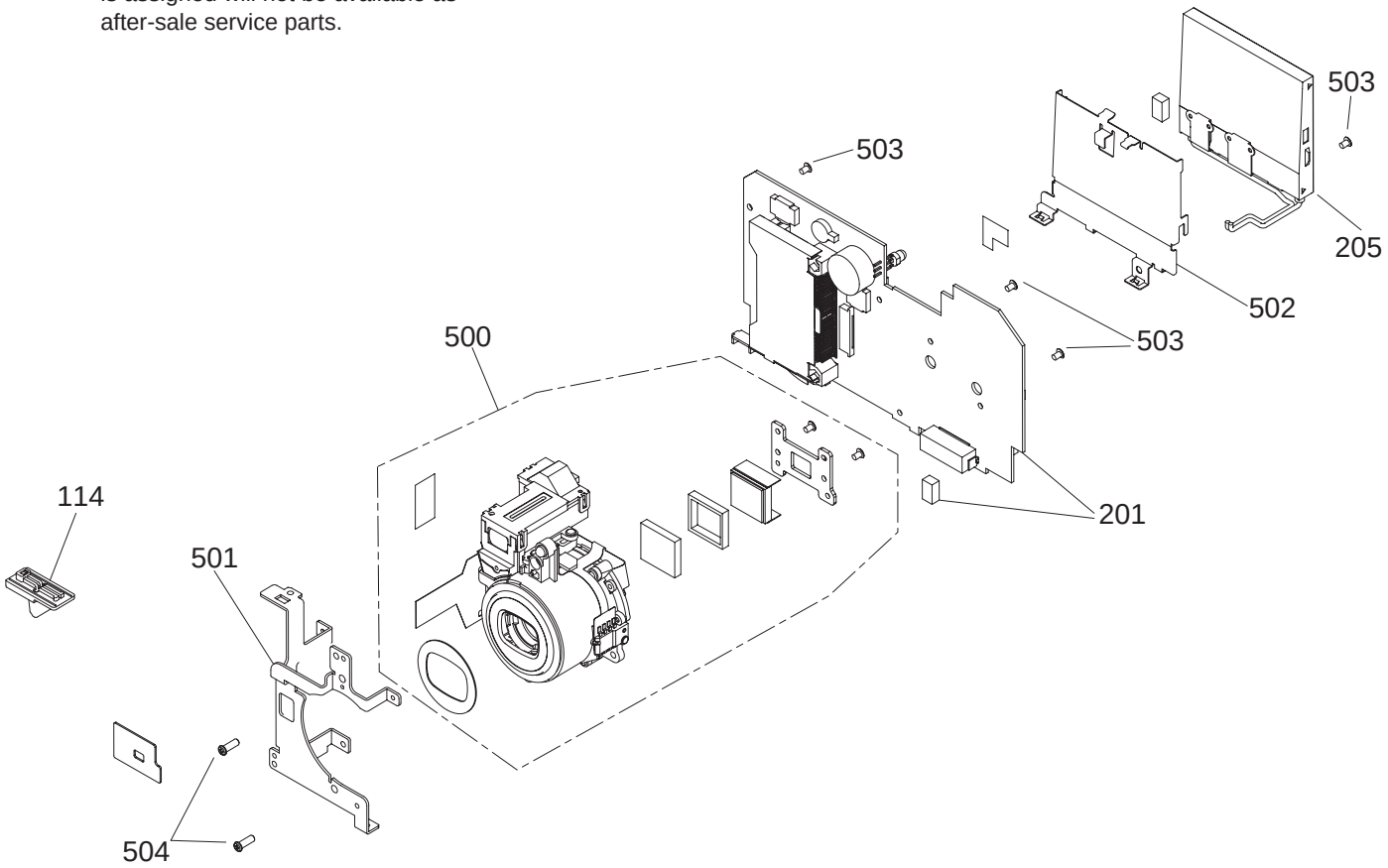
7.4 Exploded Diagrams

This section shows exploded diagrams.



FOR CP-80Z/PHOTO PC2100Z NO.1 Rev.01 B150

The parts to which no reference number is assigned will not be available as after-sale service parts.



FOR CP-80Z/PHOTO PC2100Z NO.2 Rev.01 B150

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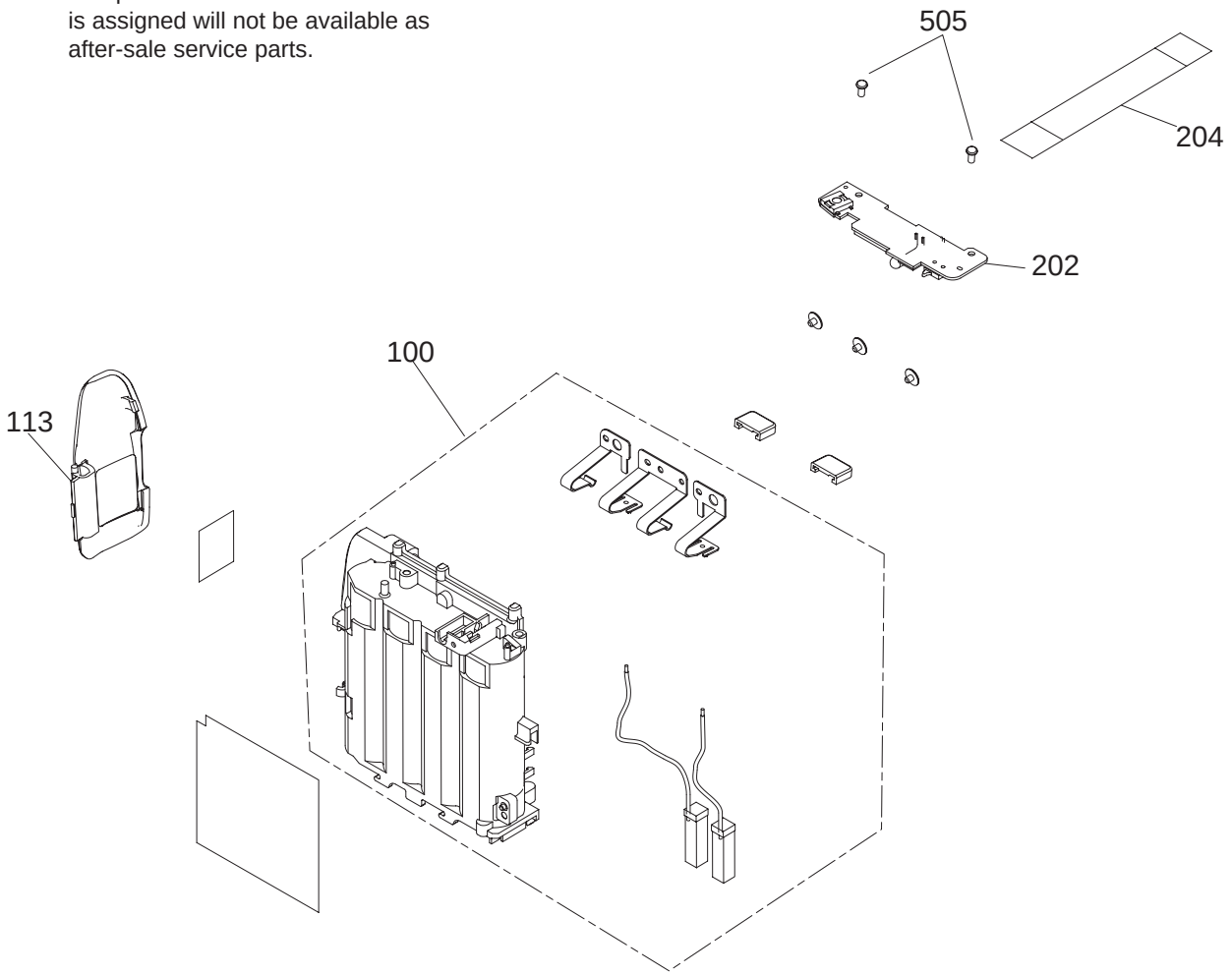

FOR CP-80Z/PHOTO PC2100Z NO.3 Rev.01 B150

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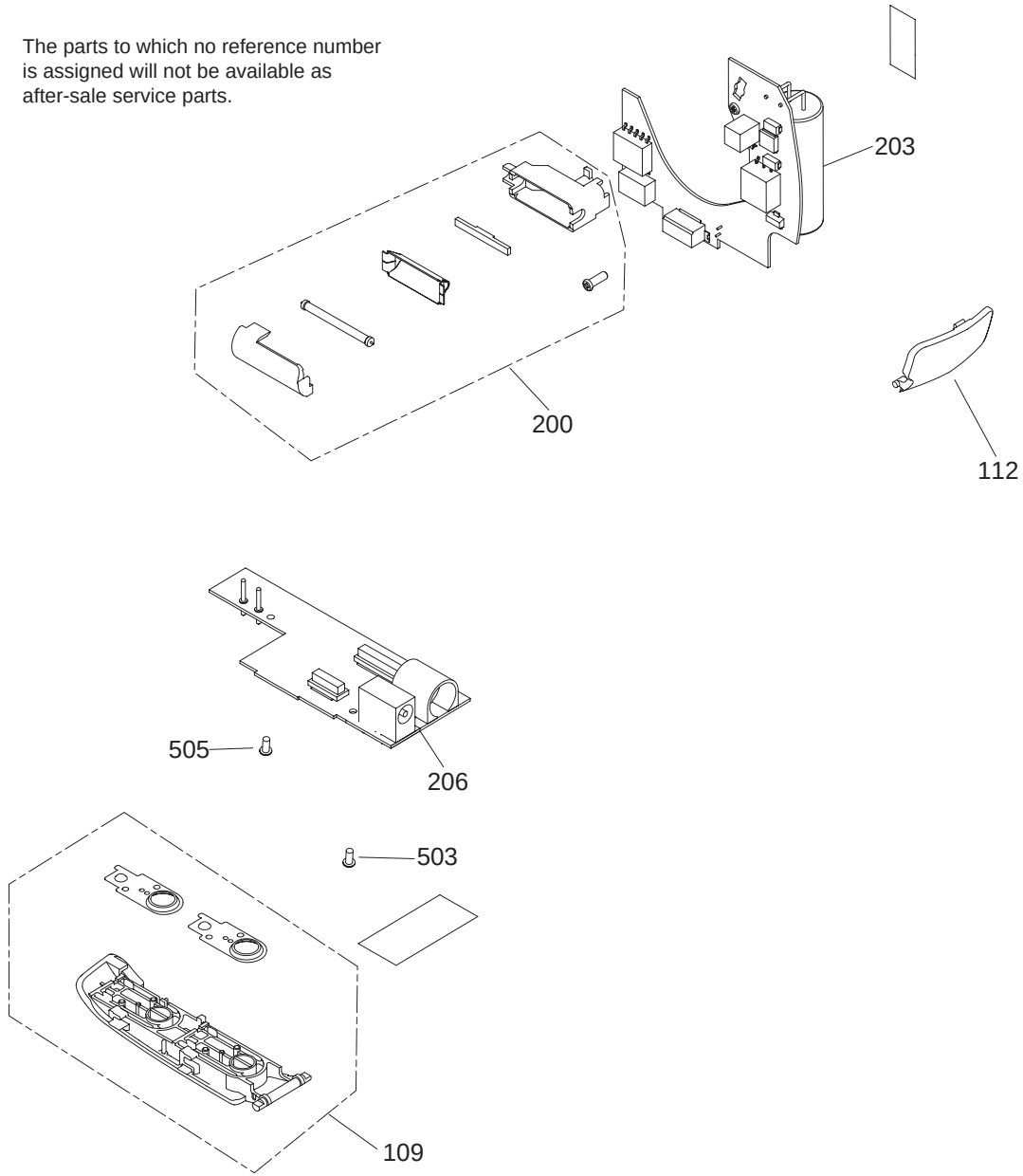

FOR CP-80Z/PHOTO PC2100Z NO.4 Rev.01 B150

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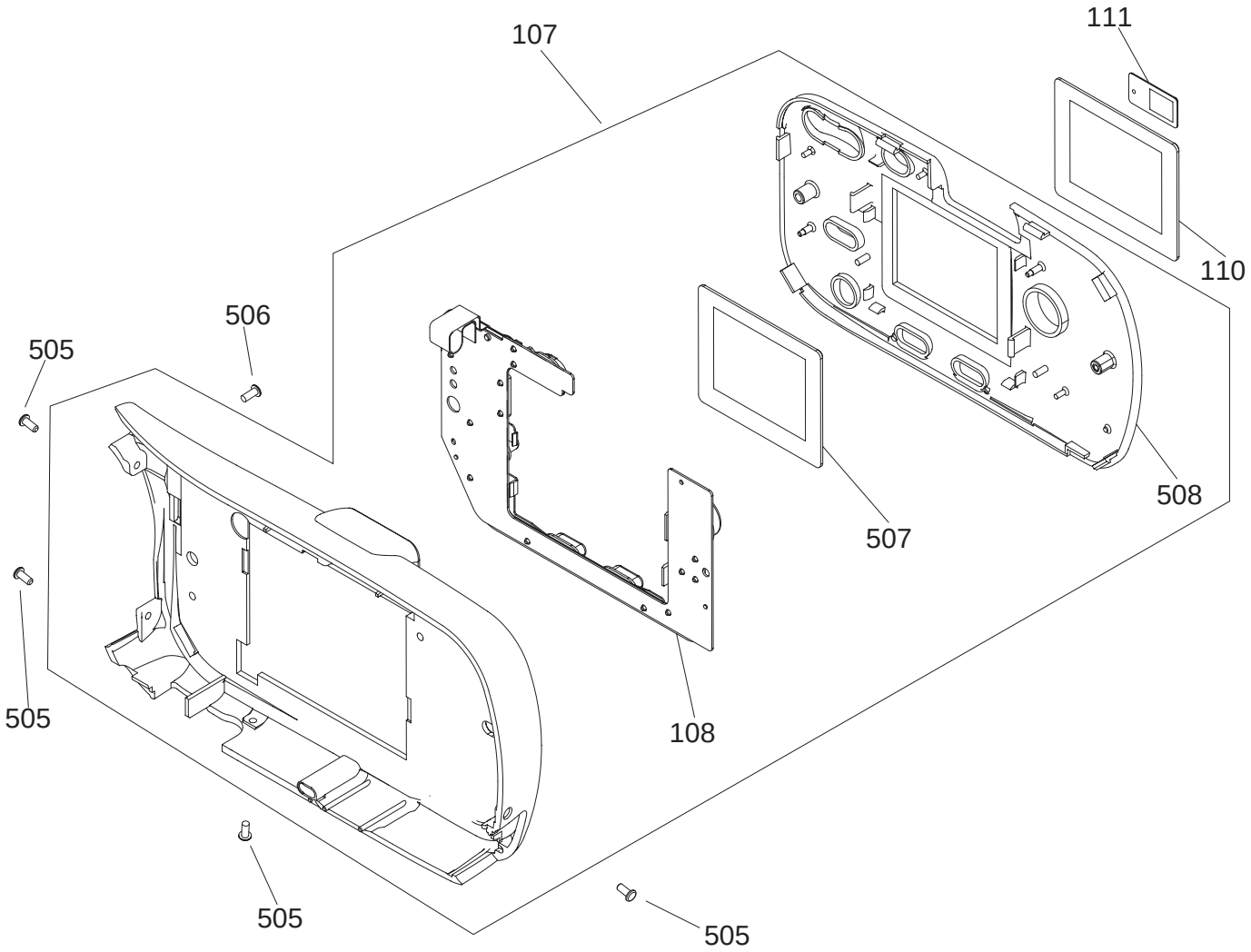

FOR CP-80Z/PHOTO PC2100Z NO.5 Rev.01 B150

7.4.1 ASP List

The Ref. Nos. correspond to the numbers shown in the exploded diagrams.

Table 7-1. ASP List

Ref. No.	Sales Part Code	Part Name
101	1083774	FRONT COVER ASSY.
102	1083775	FACE PLATE
103	1083776	VF WINDOW
104	1083777	SELF WINDOW
105	1083778	STROBE WINDOW
107	1083780	REAR COVER ASSY.
108	1083783	MONITOR SW SET
110	1083801	MONITER WINDOW
111	1083802	EYEPIECE WINDOW
505	1083858	SCREW THB 1.7X4.0-3.0X0.6
505	1083858	SCREW THB 1.7X4.0-3.0X0.6
506	1083868	SCREW THB 1.7X5.5-3X0.6
507	1083781	MONITOR GASKET
508	1083782	REAR PLATE
100	1083773	BATTERY BOX SET
109	1083784	BATTERY CAP ASSY.
112	1083803	CONNECTOR DOOR
113	1083804	CARD DOOR
114	1083805	EJECT BUTTON
200	2056376	FLASH TUBE ASSY.
201	2056394	PCB-MCU ASSY.
202	2056395	PCB-RELEASE ASSY.
203	2056396	PCB-STROBE ASSY.
204	2056397	8P FFC 0.5P
205	2056398	MONITOR LCD
206	2056399	DC/DC UNIT

Table 7-1. ASP List

Ref. No.	Sales Part Code	Part Name
500	1083785	LENS ASSY.
501	1083786	RETAINER PCB
502	1083787	RETAINER MONITOR
503	1083856	SCREW SP BOLT 1.7X2-3X0.6
503	1083856	SCREW SP BOLT 1.7X2-3X0.6
504	1083857	SCREW THB 2X6X3X0.6
505	1083858	SCREW THB 1.7X4.0-3.0X0.6
505	1083858	SCREW THB 1.7X4.0-3.0X0.6

7.5 AF Adjustment Chart

The AF adjustment chart is shown on the next page. For use, output the chart with the A2 size. (See "AF (Auto Focus) Compensation" on page 69)

[redacted]